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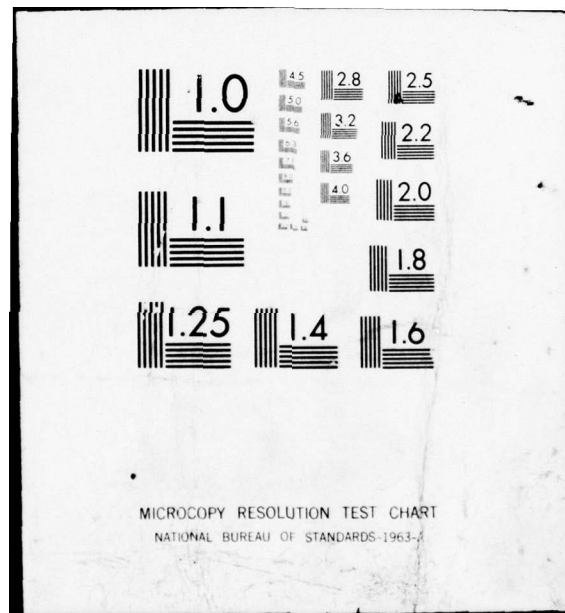
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A FEASIBILITY STUDY: THE APPLICATION OF DUTY MODULES TO A FRONT--ETC(U)
JUN 77 J R NORRIS, J R ROBBINS

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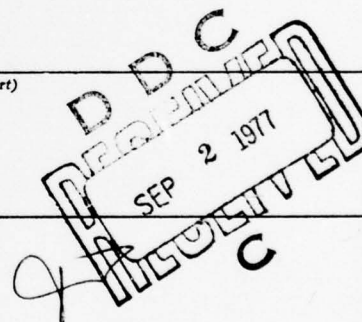
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The study concludes that the application of Duty Module concepts to the CGSC curriculum is both feasible and useful. Their use would significantly increase the ability to identify curriculum needs and define the CGSC output, both critical elements in resource justification. Additional curriculum improvements would result in more efficient resource allocation, reduction of subject matter duplication, and better use of student academic hours to support OPMS specialties; however, Duty Modules do not identify all training needs for course development and are in need of technical refinement. Recommendations include further development of Duty Module methodology with emphasis on the application to curriculum design at CGSC.

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**A FEASIBILITY STUDY: THE APPLICATION OF DUTY MODULES TO A
FRONT-END ANALYSIS OF THE COMMAND AND GENERAL
STAFF COLLEGE REGULAR COURSE**

**A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree**

MASTER OF MILITARY ART AND SCIENCE

by

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1977

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FRONT-END ANALYSIS OF THE COMMAND AND GENERAL
STAFF COLLEGE REGULAR COURSE

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A Duty Module is a cluster of related job tasks that tend to go together organizationally and occupationally in meaningful ways. Duty Modules were designed for use by U.S. Department of the Army, Deputy Chief of Staff for Personnel planners in matching personnel with Officer Personnel Management System (OPMS) job requirements. Duty Modules and their associated data of task criticality, level and time of performance can assist the curriculum designer in establishing a need for training and allocating resources to support the curriculum.

The study attempts to correlate the application of Duty Module concepts at CGSC with the U.S. Army Training and Doctrine Command (TRADOC) requirements for systems engineering of the CGSC curriculum using the TRADOC Instructional Systems Development (ISD) Model. A front-end analysis model using Duty Modules and the ISD process is developed and

applied to structuring the CGSC curriculum. Comparisons of this hypothetical curriculum and the current one are made to include discussion of strengths and weaknesses of both.

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Accepted this _____ day of _____ 1977 by _____,
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The opinions and conclusions expressed herein are those of the individual student authors and do not necessarily represent the views of either the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

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CHAPTER 1

INTRODUCTION

1-1. Purpose

The purpose of this study is to examine the feasibility and usefulness of applying Duty Module methodology, a job analysis technique, to the Regular Course at the U.S. Army Command and General Staff College.

1-2. Initiation of the Study

This study originated in October 1976, at the request of the Programs, Plans and Evaluation Office (PPE), Combined Arms Center (CAC) with the significantly different purposes of:

A. Developing a master plan/time table for implementing the U.S. Army Training and Doctrine Command (TRADOC) Instructional Systems Development (ISD) Model at the College.

B. Conducting as much as possible of Phase I, Analyze, of the ISD Model to initiate a complete systems engineering of the College curriculum.¹

1-2.1 Historical Review

In the early research stage it became evident that the scope of the project not only exceeded the resources available under the constraints of a student project, but, more importantly, that a number of significant attempts over the past five years to accomplish the same tasks had begun and

later been abandoned. While there are a variety of reasons for termination of the various efforts, two overwhelming conclusions must be drawn from review of the historical evidence of College efforts to systems engineer the Regular Course. First, there was an obvious resistance by school management to bringing the College under the TRADOC ISD Model or any comprehensive systems engineering attempts, and second, assets were never committed in any significant degree, nor over a reasonable time period to allow completion of a proper systems engineering of the College.

It is not the purpose of this study to "second guess" what should have occurred in past years, nor is there any desire to criticize the College staff which the historical documents also clearly show continuously attacked the problem with what assets were available. A number of factors, important at the time, led to the defeat of any coordinated effort at a front-end analysis.² One of the most significant was the difficulty of interpreting TRADOC ISD procedures as they applied to the officer instruction at the College. This difficulty stemmed from the fact that ISD was developed for the specific population of TRADOC schools producing MOS skill graduates. Without a major increase in study resources and a better understanding by College management of the ISD process, it is sufficient here to note that a continuation of the original study purpose would have led to a fate similar to previous attempts. A more in depth review of the historical systems engineering efforts at the College is

found in Annex A, Historical Background.

1-2.2 Redefining the Study

Realization of the above led to modification of the study objectives to address more directly the front-end analysis needs of the college with emphasis on the application of Phase I of the ISD model to College problems. The ideal of an ISD implementing plan was abandoned and since the completion of Phase I for all the College curriculum was beyond the project resources, a specific functional area, Management, was selected for use as a detailed example in applying the ISD process. Using previous research results, work was begun on drafting of questionnaires in the management area to attempt identification of officer job tasks as addressed in the ISD Model. However, prior to completion of this task, field studies by the American Institutes for Research were discovered which addressed in depth the problem of compiling an inventory of officer job tasks for the Officer Personnel Management System (OPMS). Detailed examination of this work and conferences with the Army Research Institute (ARI) who had contract responsibility for the work, led to the belief that the studies developing the Duty Module concepts accomplished a major portion of the work required in Phase I of the ISD Model. Therefore, in late March 1976, the direction of study efforts was changed to reflect the purpose stated in Section 1-1.

1-3. Duty Modules

1-3.1 Description of Duty Modules

A Duty Module is a "cluster of related tasks that tend to go together, organizationally and occupationally, in meaningful ways."³ The Duty Modules are an attempt to codify the resources, officers, and the requirements, jobs, into a meaningful set of data appropriate for use by individuals, personnel resource planners, personnel assignment officers, and manning table designers in making career management decisions. A Duty Module is thought of as being smaller than a Military Occupational Specialty (MOS) and larger than a single task statement. Each Duty Module is applicable to a number of different duty positions and a wide variety of personnel. Duty Modules are used as building blocks to describe particular job requirements and to show similarities and differences among related jobs.

1-3.2 Origin of Duty Modules

Duty Modules were developed under contract to the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI). The research was sponsored by the Chief, Research and Development and the Deputy Chief of Staff, Personnel, of the Department of the Army. Specific objectives of Duty Modules are:

- "1. To develop a model career progression lattice, based on officer MOS, duty module, and skills analysis, delineating within-branch and across-branch career development pattern leading to O-6 positions in the career progression programs of the OPMS.

2. To relate experience and training requirements of the individual officer to the differential career assignment options identified through the development of the model career progression lattice.

3. To develop and apply measures of interests, aptitudes, motivation and performance for evaluation of the differential potential of the individual officer, and to relate these to the differential requirement of assignment, second specialty choice, training, and promotion."⁴

Neither the MOS structure, nor job descriptions satisfy the research requirement. Job requirements, as outlined in the MOS structure, are too general. On the other hand, job descriptions are not standardized and tend to vary a great deal with respect to specificity of tasks performed. Duty Modules grew out of previous ARI research for a project entitled "The Development of a Taxonomy of Human Performance." This project studied ways to classify human performance that would allow for the prediction of human capabilities. The knowledge gained was applied to the Army's need for a method to represent jobs in a format which would facilitate career management planning. In order to apply the research, a new level of job description was necessary. The following design criteria were applied:

"1. The duty element must be meaningful and useful to requirement planners.

2. The duty element must be compatible with assignment practices in the field.

3. The duty element must remain essentially the same even though the requirement may exist in a variety of assignments within the organization."⁵

The task clusters that resulted from the application of the criteria were named Duty Modules. Modules have been

developed for the Infantry, Armor, Quartermaster, Engineer, and Ordnance branches. Initial research efforts were directed toward the Infantry and Quartermaster branches for positions from grades O-1 through O-6. Job schedules were developed for 198 positions in the survey. Subsequent job analysis surveys have brought the total to 386 detailed Army officer job schedules representing over 160 Duty Modules.⁶ In addition to the branch studies above, validation research was conducted by surveying job positions across 47 OPMS specialties. With each iteration in the research process, the "Duty Module Catalogue" was updated as appropriate. The most recent Duty Module listing is included in Annex B which addresses in detail the methodology employed in the design of the Duty Module structure. An example of a constructed Duty Module (A-2), Performs general administration, is shown in Table 1.1. A complete catalogue of job tasks for all Duty Modules is found in the "Duty Module Methodology for Officer Career Management System Development."⁷

1-4. Study Organization

Aside from the Chapter 1 introduction to the problem and conclusions and recommendations in Chapter 4, two broad areas are addressed. Chapter 2, Duty Modules Applied to Curriculum Development, addresses the general methodology of using constructed Duty Modules in front-end analysis to support curriculum design. The attempt here is to avoid restricting the use of Duty Modules to any specific officer professional education program. Rather, a theoretical

model applying Duty Modules to the Phase I, ISD process is investigated. Chapter 3, The College and Systems Engineering, addresses the specific problems of the College and applies the concepts developed in Chapter 2 to the College front-end analysis. Annex A, Historical Background, and Annex B, Duty Module Methodology, are provided for the reader who is either unfamiliar with previous College efforts at systems engineering or is unknowledgeable concerning job analysis techniques which are routinely employed in constructing an inventory of job tasks.

Table 1.1

Duty Module A-2, Performs General Administration

-
-
- | | |
|------|---|
| 0014 | Prepare administrative SOPs and instruction. |
| 0015 | Monitor security of classified documents. |
| 0003 | Prepare and review administrative correspondence, Memoranda, and reports. |
| 0008 | Screen incoming correspondence and distribute for action or information. |
| 0017 | Establish and operate suspense system. |
| 0018 | Authenticate orders and official correspondence. |
| 0019 | Establish and post files of records and regulations. |
| 0012 | Review, interpret and apply directives and information. |
| 0020 | Schedule appointments, conferences, and other such activities. |
| 0021 | Provide for reproduction and duplication services. |
| 0004 | Prepare and review unit journal, historical records and morning report (or change reports for centralized systems). |
| 0005 | Administer unit funds. |
| 0007 | Establish and operate unit message center. |
| 0013 | Prepare daily bulletin or similar publication. |
-

Source:

Korotkin, Arthur L. and others, "Duty Module Methodology for Officer Career Management System Development," (Washington: American Institutes for Research, January 1976), p. 10.

ENDNOTES

Chapter 1

1. The TRADOC ISD Model is discussed in detail at the beginning of Chapter 2. At this point it is adequate to define ISD as a comprehensive systems analysis of an instructional organization (the College).
2. Front-end analysis is defined in detail in Section 2-3 and summarized schematically in Figure 2.3. It is adequate to note here that it involves those analysis actions taken before resources are committed to instruction.
3. Arthur L. Korotkin and others, Technical Report, "Army Officer Duty Module Manual," (Washington: American Institutes for Research, October 1975).
4. Warren P. Davis and Arthur L. Korotkin, Technical Report, "Duty Module Relationship to Training and Experience Requirements in Career Development and Alternate Specialty Selection," (Washington: American Institutes for Research, February 1975), p. 1.
5. Davis and Korotkin, p. 2.
6. Davis and Korotkin, p. 3.
7. Warren P. Davis, Arthur L. Korotkin, and John D. Sitterson, Technical Report, "Development of Criteria Dimensions for Evaluation of Performance and Career Development of Entry-Level Officers," (Washington: American Institutes for Research, November 1974), p. 2.

CHAPTER 2

DUTY MODULES APPLIED TO CURRICULUM DEVELOPMENT

2-1. Purpose.

This chapter examines applicability of constructed Duty Modules as the basis for Phase I, Job Analysis of the TRADOC ISD Module in developing a curriculum for officer professional development without limitation of the technique to the specific problems of the Army Command and General Staff College. A theoretical model using Duty Modules and the TRADOC systems engineering process for schools is developed for later use in Chapter 3, where the College curriculum is addressed.

2-2. ISD and Duty Module Relationships

2-2.1 Duty Modules as a Base for ISD

The TRADOC ISD procedures are primarily concerned with answering the questions of what tasks should be taught, how should the instruction be designed and implemented to meet the objective, and what controls should be used in evaluating and revising the instruction. The TRADOC ISD Model is contained in detail in TRADOC PAMPHLET 350-30, Interservice Procedures for Instructional Systems Development, and can be summarized by examination of the five phases of ISD:

Phase I - Analyze

"Inputs, processes, and outputs in Phase I are all based on job information. An inventory of job tasks is compiled and divided into two groups: tasks not selected for instruction and tasks selected for instruction. Performance standards for tasks selected for instruction are determined by interview or observation at job sites and verified by subject matter experts. The analysis of existing course documentation is done to determine if all or portions of the analysis phase and other phases have already been done by someone else following the ISD guidelines. As a final analysis phase step, the list of tasks selected for instruction is analyzed for the most suitable instructional setting for each task.

Phase II - Design

Beginning with Phase II, the ISD model is concerned with designing instruction using the job analysis information from Phase I. The first step is the conversion of each task selected for training into a terminal learning objective. Each terminal learning objective is analyzed to determine learning objectives and learning steps necessary for mastery of the terminal learning objective. Tests are designed to match the learning objectives. A sample of students is tested to insure that their entry behaviors match the level of learning analysis. Finally, a sequence of instruction is designed for the learning objectives.

Phase III - Develop

The instructional development phase begins with the classification of learning objectives by learning category so as to identify learning guidelines necessary for optimum learning to take place. (Determining how instruction is to be packaged and presented to the student is accomplished through a media selection process which takes into account such factors as learning category and guideline, media characteristics, training setting criteria, and costs.) Instructional management plans are developed to allocate and manage all resources for conducting instruction. Instructional materials are selected or developed and tried out. When materials have been validated on the basis of empirical data obtained from groups of typical students, the course is ready for implementation.

Phase IV - Implement

Staff training is required for the implementation of the instructional management plan and the instruction. Some key personnel must be trained to be managers in the specified management plan. The instructional staff must be trained to conduct the instruction and collect evaluative data on all of the instructional components. At the completion of each instructional cycle, management staff should be able to use the collected information to improve the instructional system.

Phase V - Control

Evaluation and revision of instruction are carried out by personnel who preferably are neither the instructional designers nor the managers of the course under study. The first activity (internal evaluation) is the analysis of learner performance in the course to determine instances of deficient or irrelevant instruction. The evaluation team then suggests solutions for the problems. In the external evaluation, personnel assess job task performance of course graduates and other job incumbents. All collected data, internal and external, can be used for quality control of instruction and as input to any phase of the system for revision."¹

In an examination of the applicability of the Duty Module concepts as they relate to ISD, one is concerned mainly with the technique of implementing Phase I, Analyze. In essence, Phase I provides the basic elements necessary to the design of an instructional setting:

- "I.1 - a list of tasks performed on the job.
- I.2 - selection of tasks for instruction.
- I.3 - a job performance measure for each selected task.
- I.4 - an evaluation of current instruction related to selected tasks.
- I.5 - a selection of the instructional setting for these tasks."²

It is important to note that Phase I does not answer the question of a "need" for educational training in specific tasks. A determination of this need is made by a comparison of skills necessary for job performance and the ability of persons serving in those positions to perform these skills. This comparison should be accomplished prior to application of the Phase I procedures with the results of such a "needs assessment" specifically required as an input to Phase I of the ISD Model.³ In schematic form, the relationship of Phase I can be related to a total systems examination as shown in Figure 2.1.

The distinction of a "needs assessment" from the analysis phase of ISD is important and may best be clarified by an example. Consider the position of a Division Assistant G-3 for Training. Analysis of the incumbent's duties (a job analysis conducted either as part of a needs assessment or Step I.1-Analyze Job, Phase I of the ISD Model) would most probably reveal as a job task the following: "Monitor, inspect and evaluate training performance and status."⁴ ISD procedures will identify in Phase I whether or not this task should be selected for an educational training program, what measures of performance should be applied (standards and conditions), and where the task should be taught (on the job, service school, etc.). But, ISD has assumed that the skill was previously identified in the "needs assessment" as a skill that job incumbents are lacking. Therefore, it is

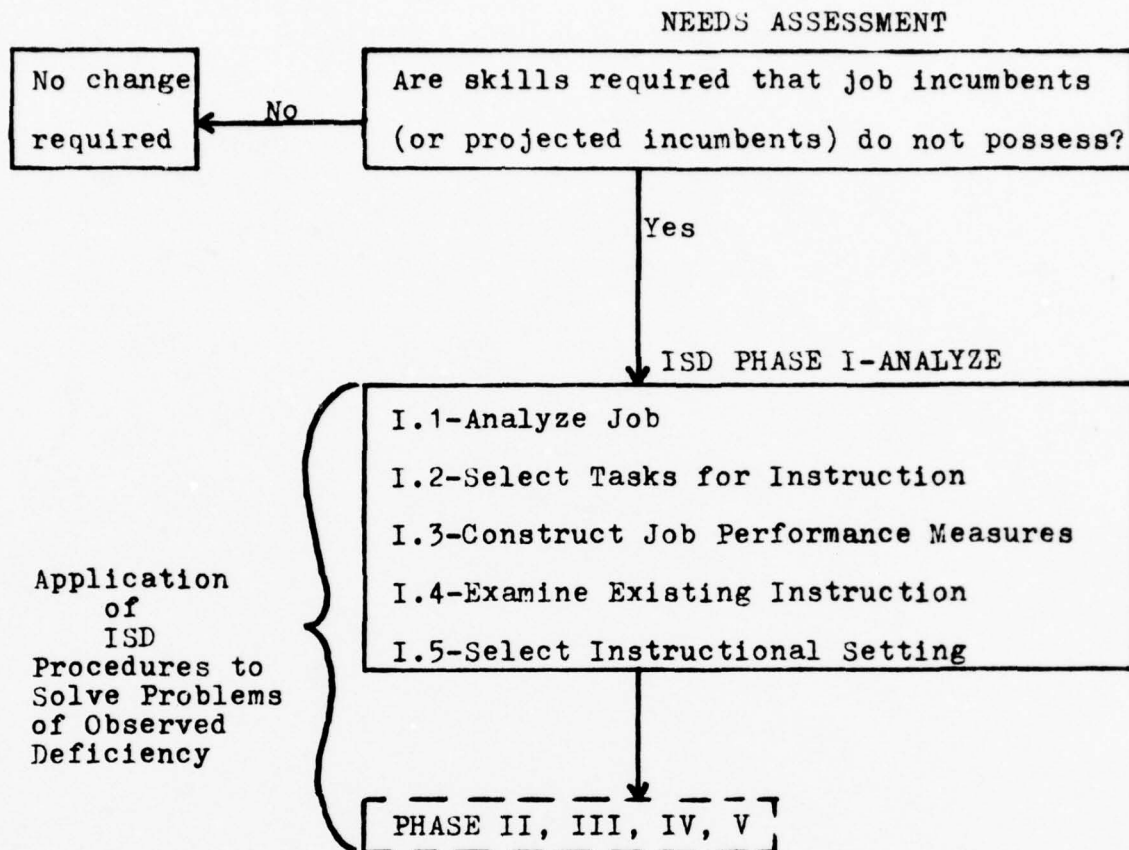


Figure 2.1

Relationship of Phase I to ISD Model⁵

an appropriate skill to be considered for some form of training/education. This assumption represents the distinction between a "needs assessment" which precedes the TRADOC ISD procedures and Phase I of the ISD Model.

In applying Duty Module concepts and methodology to this first phase of ISD, it must be carefully noted that only Step I.2-Analyze Job can be completely satisfied by constructing an inventory of job tasks. Specifically, accurately constructed Duty Modules will define the task list that results from the job analysis, but they do not in themselves answer the question, "Is there a need to teach this skill to job incumbents?" Duty Module construction and its relationship to the total job/education system can then be represented as shown in Figure 2.2. While Duty Module construction appears to satisfy only a small number of the specific actions required to systems engineer the job/education system, the real importance of Duty Module construction can not be over emphasized. As the authors of the TRADOC ISD Model, and numerous authors in Education Research and Development point out,

"(Job analysis)...when it is properly managed, yields extremely impressive payoffs in training effectiveness and cost efficiency. These payoffs are principally due to the organization of training and aimed at concentrating on the important aspects of the job and selectively ignoring the unimportant parts of the job."6

Furthermore, completion of the job analysis step (or equivalently, construction of Duty Modules) represents a

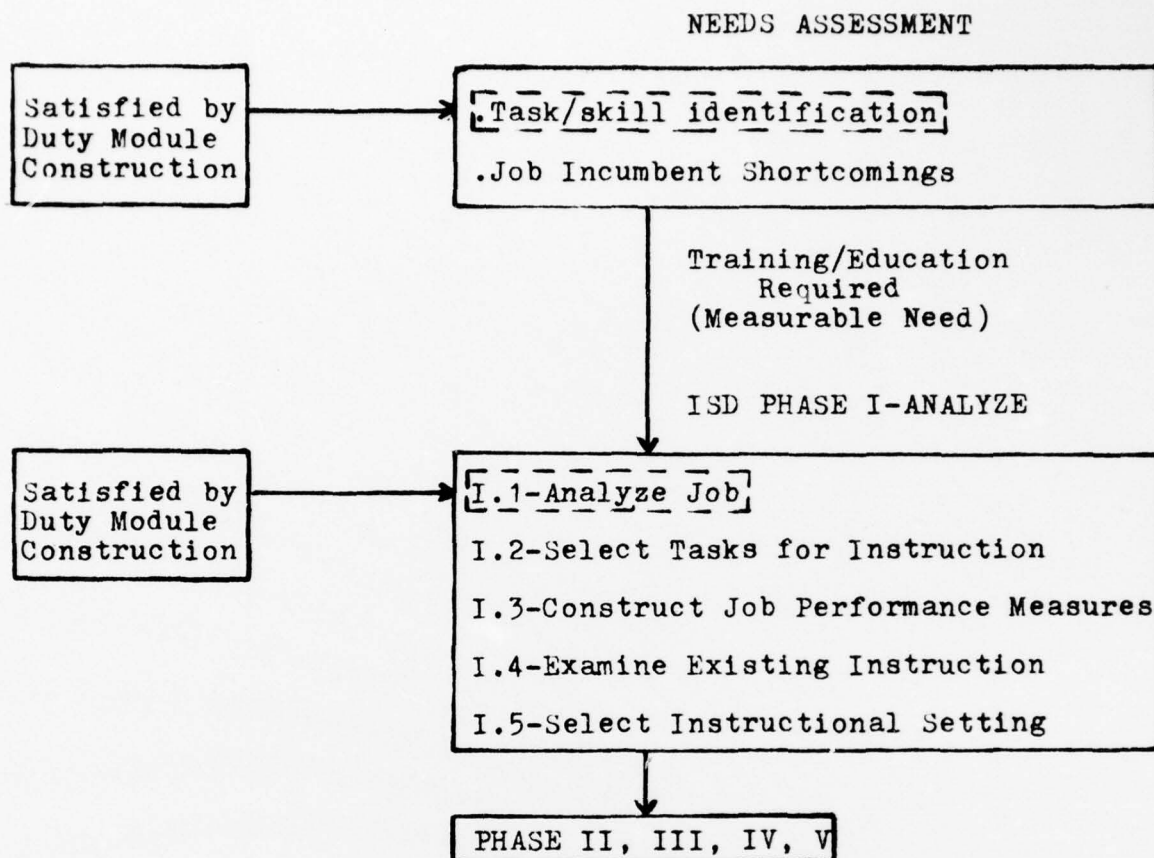


Figure 2.2
Relationship of Duty Modules to the
Total Job/Education System⁷

significant step forward in the ISD process. In terms of resource allocation to systems engineering and course design under ISD,

"...(the) job analysis effort probably represents the greatest investment of time and money of any of the initial steps of course design"⁸

Nor are Duty Modules constructed in the job analysis step unrelated to the remainder of the ISD process. In fact, the task list constructed in Duty Module form becomes an input to numerous succeeding steps of the ISD process and represents the primary input to Phase II, Develop Instruction. During this phase, learning objectives which form the core for authorship of instruction are evolved from the task list (Duty Modules) formulated in Phase I. Thus, proper development of Duty Modules represents a major portion of the resource allocation required to establish the traditional three part instructional unit learning objectives which specify:

- a statement of the action.
- the condition under which the action will be accomplished.
- the standards involved in the performance.

2-2.2 Task Criticality, Level and Time of Performance

Prior to addressing the actual methodology of applying constructed Duty Modules to curriculum design, the inherent information of task criticality, level and time of task performance collected under the Duty Modules effort should be related to the ISD process as best as possible. Unlike the

equality that can be drawn between the output of Phase I (Step I.1 - Job Analyze) and Duty Modules, the level of task performance and criticality of tasks are not singled out in the ISD process. However, a reasonable interpretation of the ISD process and its assumptions leads to the conclusion that both level and criticality of task performance are intended for use in ISD. If the output from a needs assessment represents the measurable differential between job incumbent's abilities to perform their assigned job and the necessary abilities, then we must assume that the criticality issue is resolved in the needs assessment and prior to initiation of ISD processes. That is, ISD addresses "how to conduct the education" and not "must we conduct the education." In essence, criticality of tasks is not primary to application of the first phase of ISD. The question of expending resources to conduct training/education was answered in the needs assessment. Thus, resource allocation in ISD is primarily concerned with determination of the most efficient allocation of resources to accomplish learning objectives which evolve from tasks selected for training. A trade-off of one job task against another using factors of criticality, level and time of task performance was accomplished in the needs assessment prior to Phase I. This consideration has special significance in addressing the particular curriculum problems of the College (the topic of Chapter 3, The College & Systems Engineering) in that the College is faced with an overwhelming array of job tasks

which its graduates will perform as a result of the varied OPMS specialties and anticipated assignments of the student body. Available College resources of time, money, and manpower provide a physical limitation to the curriculum that forces major trade-offs in selection of job tasks to be taught as well as the degree of proficiency to be pursued. Examination of the data collected in the Duty Module survey permits, for example, ranking Duty Modules by criticality for all OPMS specialties under both combat and garrison conditions. Similarly, the level and time of performance measurements are direct inputs to the phases of ISD which are concerned with the Design, Phase II, and Development, Phase III, of the instruction.⁹ Thus, it is the application of these three essential elements of data coupled with the Duty Module list that allows efficient allocation of resources to curriculum construction. A sample survey form showing the format for collection of criticality, time and level of performance data is included in Annex B, Table B.3.

2-3. Duty Module Concepts Applied to Curriculum Design

The methodology of curriculum design to support officer professional development offered here is only one approach to construction of a curriculum and is applicable to all officer training, not simply to the College. A number of variations of this technique can be found depending on the nature and mission of the institution. Additionally, the many realities of resource availability, personnel assignment

limitations, and personal considerations of student families are not considered. Rather, the following methodology provides a theoretical model for front-end analysis in curriculum development. This model will be used as a framework in Chapter 3 to address the specific problems of the College curriculum.

2-3.1 The Process - A Front-End Analysis Model

In essence, the process represents nothing more than an expansion of the ISD Model to include a needs assessment and uses the Duty Module inventory list with its contributory information of criticality, level and time of performance to develop initial inputs needed in curriculum design. Since specific details of each stage can be fitted only for specific training education missions, the model is provided in general terms. The major strengths and weaknesses of this theoretical model will be addressed at the end of this chapter.

As in all models, some assumptions are present:

-first, a quantitative measure is possible for all activities in the model;

-second, all "knowledge" required by a job incumbent will be identified by a job analysis technique which results in an inventory of job tasks;

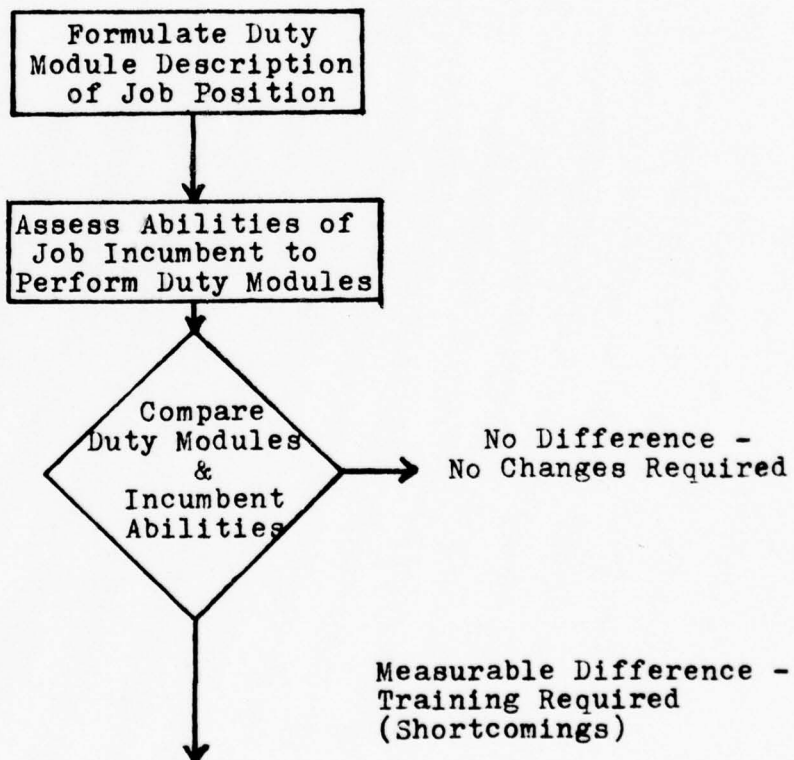
-and last, the only solution for a training deficiency is construction of a curriculum. That is, ISD Steps I.4, Analyze Existing Courses, and I.5, Select Instructional Setting, are ignored.

The assumptions will be addressed later in this chapter and again in Chapter 3 when the College situation is specifically examined.

Portrayal and description of our model follows:

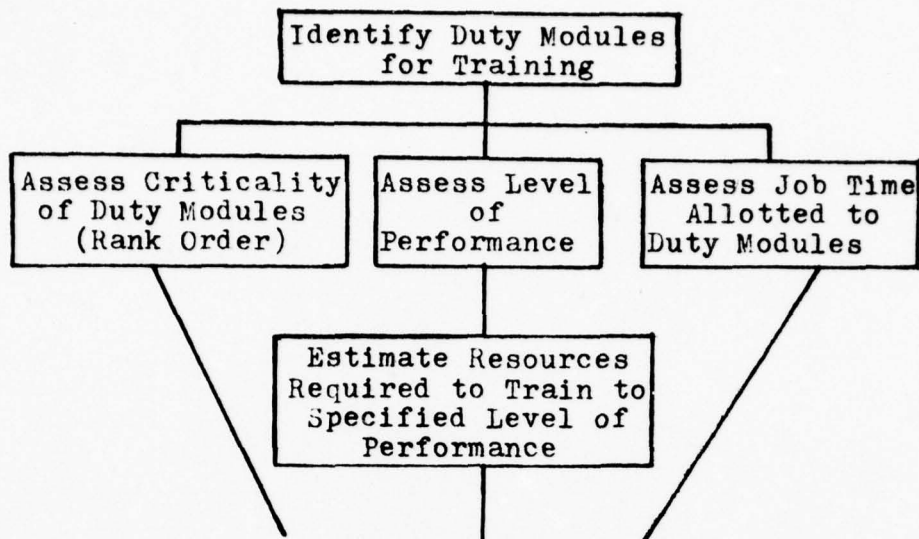
Identificat on of
Job Positions

Explanation: Under most conditions these will be obvious by examination of the organizational purpose/mission. Such is not the case when considering the College situation as will be discussed in Chapter 3.

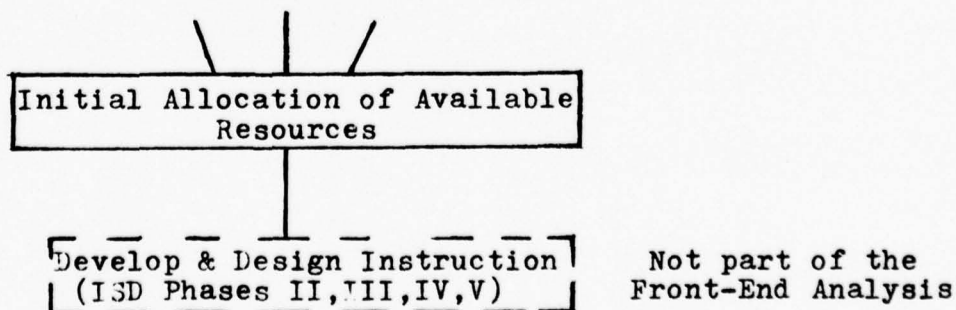


Explanation: These steps comprise the needs assessment previously addressed. This stage and the emphasis on an

early resource allocation stage are the only real differences between this model and the ISD process. In considering officer professional development, the periodic personnel turnover in job positions implies an assessment of "future" job incumbents in order to obtain a true measurable difference for training development. This specific step is not satisfied by construction of Duty Modules to describe a job position; however, Duty Modules have been used by ARI in recent efforts to address "entry level" skills of commissioned officers on to active duty.¹⁰ Utilizing Duty Module methodology and given the proper selection of a population representative of future job incumbents, assessment of job incumbent abilities is feasible. It should be noted that job performance standards would be required as defined in the ISD Model, Step I.3 to effectively make such a comparison. Furthermore, job performance measures are not addressed by Duty Module techniques to date. Efficiency of effort dictates that these measures should be constructed simultaneously with survey efforts to construct Duty Modules.



Explanation: The essential elements required for course managers to allocate resources are collected in this stage. As mentioned in the Chapter 1 and Annex B discussions of Duty Module techniques, all data to support assessment of criticality, level and time of performance are collected simultaneously with construction of the Duty Modules. Thus, the only portion of this stage external to the Duty Module survey is the estimation of required resources. This estimation can be obtained by using the procedures of later phases in the ISD Model. In the specific instance of the College, these estimates can be obtained through the processes of the Criterion Referenced Instruction Workshop.



Explanation: As a final step to the front-end analysis, there remains only the management task of allocating resources among competing training requirements based upon the following survey data collected in the previous stage:

- a. Time devoted to Duty Modules.
- b. Criticality of Duty Modules.
- c. Level of Performance of Duty Modules.
- d. Resource estimate to attain desired performance.

The output of front-end analysis represents the inputs to the remaining phases of the ISD Model.

Overall examination of this model for front-end analysis shows that completion of the Duty Module construction and the associated data of criticality, level and time of performance account for the major expenditure of resources in conducting the analysis. This does not imply that those procedures not satisfied by Duty Module surveys (assessment of job performance measures, estimation of resources required, and allocation of resources) are simple, nor that they do not require a significant expenditure of resources under direction of a professional education research staff. The latter event, allocation of resources, should involve quantitative analysis using trade off techniques familiar to the operations research specialty. Design of procedural models for this step should be investigated as a separate study effort by curriculum development personnel.

2-3.2 Model Summary

To summarize our suggested front-end analysis model, it is schematically repeated in its entirety in Figure 2.3 with identification of ISD relationships. The contribution of Duty Module construction is outlined as double-bordering of elements.

2-4. Weaknesses and Strengths of Duty Module Methodology

There are two very broad categories of strengths and weaknesses of Duty Modules that must be considered: first, those stemming from the methodology itself, or for that matter from the use of any job analysis technique which uses an inventory of job tasks; and second, those specifically addressed to the problems of the College. The latter is more properly discussed in Chapter 3 following possible College application of Duty Module methods; however, it is appropriate here to look at the more general strengths/weaknesses in the methodology itself.

2-4.1 Weaknesses of Duty Modules in Curriculum Development

No honest critic of job analysis techniques used as a basis for curriculum construction will fail to concentrate on the first two assumptions listed above for the suggested front-end analysis model. Specifically, the inability to quantitatively measure all aspects of job performance and the inability to describe all knowledge required by a job incumbent in the form of a task statement. In analyzing

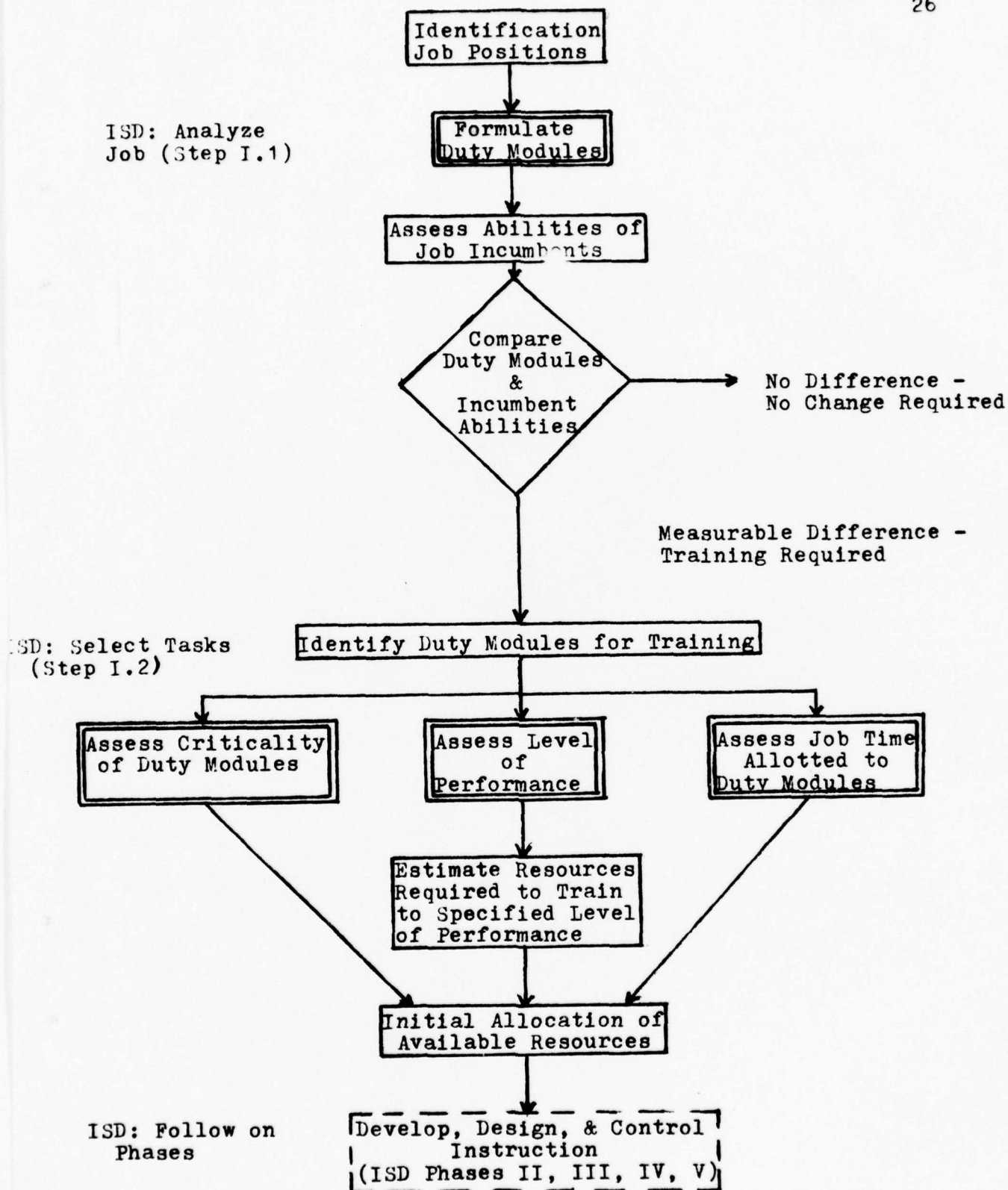


Figure 2.3

Front-End Analysis Model

many human activities, the problem of measurement is a serious one. How, for example, does one "accurately" measure level of performance or criticality of the job task? While perfect measurement is beyond the ability of any researcher, it is possible to control this problem by use of applied sampling techniques to solicit, in effect, a consensus of opinion. A combination of good statistical design, careful definition of measurement terms, and proper survey instrument design will limit (not eliminate) the effects of measurement errors in job analysis. A credible result can be obtained only with the use of a professional staff of job interviewers, social scientists, and statisticians; anything less will obtain doubtful results. The more serious limitation of job analysis or Duty Modules, is the difficulty of identifying many knowledges which contribute to job performance, but are not identified by specific task statements. In the case of officer job positions how does one develop a task for the ethical responsibilities of an officer? Where can the need for an Army Officer to understand procedures applied by sister services - the U.S. Navy, Marine Corps and Air Force - be described in a task list? And, what of the need for physical conditioning as part of a curriculum or a need to understand the Communist philosophy of life? Many other questions can be raised concerning the ability of an inventory task list to identify all knowledges required for a job incumbent. In the specific instance of

curriculum development from a task list, such as those provided in Duty Modules, one solution to this shortcoming is to recognize the limitation as such. Duty Modules are no more than identifiable clusters of tasks performed in a specific position. Extracting from this task list the knowledge which an incumbent must possess to effectively perform his job is a separate phase of curriculum development and provided for in Phase II, Design, of the ISD Model. Conversion into learning objectives requires subject matter expertise and is neither simple, nor accomplished in a vacuum. And, the more intangible or remote the knowledge may be from the task, the more difficult it is to recognize a need for related learning objectives. Recognition of this shortcoming should lead the curriculum developer to supplement job task efforts with a "jury of recognized experts" survey.

A final shortcoming of job analysis which must be considered is that of the time lag between the first step, construction of a Duty Module, and arrival of the trained job incumbent in his particular position. Given a reasonable allocation of time to perform a front-end analysis, design and development of a supporting curriculum, and the instruction itself, this lag can conceivably be three to five years in length for the initial development of a curriculum based on a Duty Module structure. This time frame results from an estimate of 18 to 24 months for completion

of the Duty Module structure, 18 to 24 months to design and develop a curriculum from the task lists, and 12 months to complete an academic year.¹¹ Following initial development, this process would be significantly reduced as revisions are incorporated into the curriculum on an annual basis. In any job position a lag of this nature can produce an evolution of tasks which may significantly differ from those originally used as a curriculum basis. In considering military job positions the shift can be even more dramatic as dynamic changes in the international political sphere or technological advancements in weapons systems alter the direction of military strategy and tactics. The period of the 1970s offers a vivid example of such events. The focus of U.S. Military efforts in this period, especially in the field of training/education, have shifted from the arena of low-intensity, counter-insurgency operations to concentrate on the use of highly sophisticated weapons systems and changing tactical doctrine to defeat an armor threat in mid/high intensity conflicts.

One must recognize that this problem of time lag will occur during the development stage and take special precautions to limit any affects on the curriculum structure. A technique that can be employed here, as well as in other areas supporting a Duty Module based curriculum is the traditional "jury of recognized experts." A caution should be raised that the "jury of experts" approach is easily

influenced by one or two members of the jury exerting undue influence on the jury opinion. Additionally, when a conflict of interests exists within the jury this technique leads to bias problems. A specific example is having a department director as a jury member reviewing curriculum content and allocation of curriculum resources to different courses. Even the most honest, best intentioned officer in this position will retain a bias concerning the need for his department's instruction that will be difficult to assess or overcome.

The use of field surveys soliciting comments on curriculum revisions from selected military experts external to the system can be effectively employed to overcome some of the problems of Duty Modules. Since this structure represents a true field need for task performance, the approach should be used with care under carefully defined limits as to the modifications allowed to the Duty Modules.

2-4.2 Strengths of Duty Modules in Curriculum Development

The single most valuable contribution of a construction of job tasks as a basis for curriculum development is that instruction will reflect actual needs. Such a construction will significantly increase the degree of quantification of the desired output of a training/education process. While perfect identification of the output may not be attainable, the data provided by a validated inventory of job tasks, the

level of task performance and the criticality of these tasks serve as an invaluable aid to management. It is only against such a "measurable" framework that training designers can address such questions as instructor/support manning requirements, fund requirements, and facilities allocation. A comparison of input and output performance/knowledge levels for the purpose of curriculum evaluation can only be made if the inputs and outputs have been successfully measured. Simply stated in order to determine the subject matter to teach and how to teach it, one must know what specific performance he is attempting to achieve in the education process. Duty Modules address this fundamental question by lending definition to the desired performance of the individual. The value of this basic system requirement - output definition - can not be overstated. This is especially true in the military where the application of zero based budgeting concepts will make it difficult to justify a significant expenditure of funds without some degree of program output measurement. Duty Modules or any properly constructed job task inventory will provide a framework for such an output definition. It is not a perfect definition as some would prefer, but a validated Duty Module structure will go a long way toward solving the problem of output definition for training/instruction programs.

Curriculum development can also benefit by the use of Duty Modules in identification of student ability at the time of input to the training/education process. No

curriculum can respond effectively and efficiently to an unrestricted level of input capabilities/performance. Duty Modules used in conjunction with job measures/standards and pre-testing for estimation of input performance levels can effect dramatic increases in efficient allocation of instructional resources. This will be addressed more specifically in Chapter 3, where College peculiar education problems are addressed.

A final plus must be accredited to the use of Duty Modules in curriculum design for the extensive development and the resulting validity of the work to date. As was discussed in Annex B, field verification of the original Duty Module structure has shown it to be an extremely effective description of job tasks across the OPMS specialties. The major portion of a job analysis survey has already been accomplished and limited additional effort will be required to produce a usable inventory of job tasks for curriculum development. The data bank constructed from field surveys is available to the curriculum designer for correlation analysis and other statistical evaluation of subject matter relationships.¹² An estimate of resources needed to apply Duty Modules to the College is ~~not~~ addressed in this study.

ENDNOTES

Chapter 2

1. U.S. Department of the Army, Training and Doctrine Command Pamphlet 350-30, Executive Summary and Model, (1 August 1975), p. Foldout.
2. U.S. Department of the Army, p. Foldout.
3. U.S. Department of the Army, p. 17.
4. John D. Sitterson and Joseph O. Wintersteen, Technical Report, "Results of Field Survey to Evaluate an Experimental Set of Officer Duty Modules," (Arlington: American Institutes for Research, January 1974), Annex 15 to Appendix J.
5. U.S. Department of the Army, p. 1.
6. U.S. Department of the Army, p. 17.
7. U.S. Department of the Army, p. 1.
8. U.S. Department of the Army, p. 18.
9. U.S. Department of the Army, p. Foldout.
10. Warren P. Davis, Arthur L. Korotkin, and John D. Sitterson, "Development of Criteria Dimensions for Evaluation of Performance and Career Development of Entry-Level Officers," Technical Report, (Arlington: American Institutes for Research, November 1974).
11. Interview with Arthur L. Korotkin, Richard A. Gibboney Associates, Inc., Telephone interview, Fort Leavenworth, Kansas, 24 May 1977.
12. "Test Data Bank Index," Technical Report, (Washington: U.S. Army Research Institute for the Behavioral and Social Sciences, October 1975).

The Duty Module data bank is available on punched cards or magnetic tape from the Army Research Institute for Behavioral and Social Sciences. One copy of the card deck has been provided to the Office of Curriculum Development, U.S. Army Command and General Staff College.

CHAPTER 3

THE COLLEGE AND SYSTEMS ENGINEERING

3-1. Purpose

The purpose of this chapter is to examine the usefulness of applying Duty Module methods to curriculum analysis and design at the College. In addition to consideration of the current major issues facing the College and the impact Duty Modules may or may not have on these issues, the front-end analysis model developed in Chapter 2 is applied to a curriculum design at the College. Correlation between the current College curriculum and constructed Duty Modules is addressed as well as specific problems encountered in examining the existing catalogue of Duty Modules. The final section of this chapter addresses the question of resources required to conduct a complete front-end analysis of the College.

3-2. Major College Issues and Duty Module Considerations

A wide variety of major issues have confronted the College in the past three to five years which stem in most part from the increased scope of the College mission, a shift in the focus of College instruction from Army organizations of division through theatre level to battalion through division, and changes in the experience and education composition of the student population. These problems are

addressed in the historical documents summarized in Annex A. In particular, the "CGSC Mission Analysis" and the "Academic Issues" memorandum detail these problems. Those within the operational control of the College, have to some degree been addressed. But some, primarily those raised by the mission analysis, still remain as a major stumbling block to effective systems engineering of the College.¹ The only issues addressed here are those that will benefit from the application of Duty Modules to front-end analysis of the College.

3-2.1 Mission Definition

A definite need exists to resolve the current dilemma the College faces in the conflict between the mission statement in AR 351-1, "Army Training," and implementing guidance as provided by TRADOC. As indicated in the mission analysis study, the resources now available to the College are not adequate to allow training in every function and to the degree specified in these documents.² Thus, the actual College curriculum has evolved from the original mission in AR 351-1 to one responding more to the real life functions of today's Army officer and emphasising the evolution of OPMS. In addition, it strongly reflects TRADOC's directions to improve officer skills at division and below.³ The study recommendation of mission re-definition is a crucial element of front-end analysis to support the curriculum. The determination of a mission statement is found in the needs assessment stage outlined in Chapter 2. As shown in Figure

3.1, the needs assessment stage of the front-end analysis model developed in Chapter 2 is designed to identify the College mission. It is the measurable difference obtained as an output to this stage that proves a statement of the training mission.

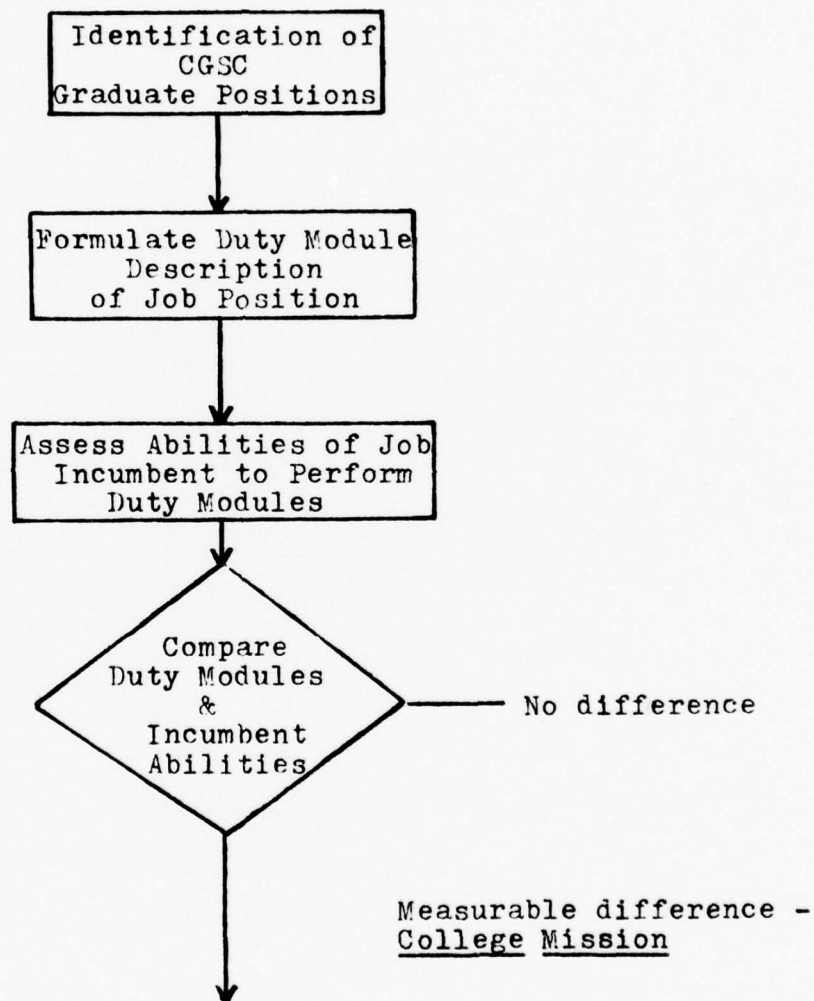


Figure 3.1

Needs Assessment Stage

One should not initially be concerned about the scope of jobs that may result from such an analysis, nor should one be

concerned with the vastness of required training that could result from an "unrestricted" needs assessment. Identification of tasks for training and reduction to a real life training program will occur in the later analysis stages of ISD where identification of those Duty Modules requiring formal development of training (as opposed to OJT or use of existing courses) is accomplished. A final limitation to the training program will occur in the allocation of resources stage when the high priority job tasks are selected for training. One might initially be inhibited by the size of an unrestricted look at all positions potentially filled by College graduates; but, an advantage to the use of Duty Modules is that such an approach has been taken by ARI and many of the densely populated specialties have been well surveyed (Infantry, Armor, Engineer, Quartermaster, Ordnance). The methodology has been applied across the spectrum of the OPMS structure with only the size of the sample a real restriction to interpretation of results. Furthermore, the technique of Duty Module structure and the wide applicability across officer grade and organizational levels makes them applicable to company through brigade (level 3 instruction) as well as division and above (level 4/5 instruction). Another significant point to note is that Duty Module development to support the College curriculum is not dependent on a prior decision concerning the College mission; therefore, it can proceed simultaneously with mission analysis. This

approach would reduce the overall time required for front-end analysis. If sample results are to accurately reflect the job tasks performed by graduates only the initial step in the needs assessment stage, Identification of Job Positions, must be made prior to further work on Duty Modules. Furthermore, decisions concerning the College mission should be made only after the Duty Module structure has been completed and measurable differences of incumbent performances are identified. Therefore, the front-end analysis can proceed simultaneously with mission definition.

3-2.2 Justification of College Committed Resources

Two broad areas of resource justification face the College; first, justification of the need for the College itself, and second, justification of the annual operating resources. While it is doubtful that Duty Module concepts will offer a complete solution to these problems, their application to curriculum development can identify the need for field grade officer education and quantify the output of the College. These essential elements are required for resource justification in any system.

The very complex question which arises from the first of these resource problem areas is: "Do College graduates perform better in their follow-on assignments as a direct result of the curriculum at the College?" A quantitative assessment of this question requires an ability to measure performance in selected positions of equal quality officers

for both graduates and non-graduates. To date, the only performance measurement device applied to officers has been the OER system. Since OER's have been the principal instrument used in selection of College attendants, any attempt to compare graduate and non-graduate performance by later OER's would be invalid as a result of the quality difference of subjects being compared. That is, the instrument used in comparison, the OER, was previously used to show a measurable difference with the better performers attending CGSC. Its later use would reflect an obvious bias to show the College graduate as a superior performer. Furthermore, any attempt to construct a test or collect data to address this question would be hampered by the confounding effect of an identifiable difference between the graduates and non-graduates. Thus, efforts to establish a need for the College curriculum by comparison of graduate and non-graduate performance is an impractical approach to solution of the problem.

A more productive approach to the College justification problem would be to concentrate on completion of the needs assessment previously addressed. Establishing a "quantifiable" need for training, in essence, provides the justification for the programs. Limited resources dictate that only a portion of the available officer corps would be selected for training. With a valid Duty Module structure for positions identified in the initial step of the needs assessment, the major problem is that of assessing the

ability of job incumbents in order to identify any measurable differences and thus a training program.

Currently, the Army does not have a procedure for quantitative measurement of the shortcomings of job incumbents. Essentially, the process is a synthesis by DA, TRADOC and College management of subjective assessments from the field (a jury of experts). These identify shortcomings and become input to the annual curriculum review. A typical example of this process is the 22 September 1976 TRADOC message, "Financial Management Training in TRADOC Service Schools," addressing an "observed" officer performance shortcoming in the area of Financial Management Training. As a result of this message curriculum modifications have been made by increasing the financial management instruction to overcome the deficiency. This approach is subject to the limitations previously raised in the discussion of the "jury of experts" survey to determine curriculum needs. In fact, this particular example emphasizes one of the weaknesses of a jury. That is, the curriculum deficiency in financial management training could have been detected earlier using job analysis techniques. Examination of the "A" series of Duty Modules constructed in 1973, show tasks directly related to this field that were scored as critical to a variety of job positions. The current emphasis on cost control and resource allocation is not specifically identified for job positions other than staff at Corps or above; but, this

can be attributed to the date of the OPMS survey and not to any weakness in Duty Module methods. Recent emphasis on resource allocation at the lower staff/unit levels would be revealed by a current Duty Module study or in Phase V of the ISD Model, Control, where external feedback on instruction is developed and applied to curriculum revision. In this instance the deficiency went unnoticed until it surfaced as a major shortcoming at Department of the Army level. Thus, to be corrected, it may often be the case that a shortcoming of job incumbents must be severe in nature and of such a magnitude that a majority of the "jury" would be aware of the problem. However, a continual external evaluation system as defined in Phase V would identify changing job tasks within a Duty Module in a more timely fashion.

It should be further noted that identification of this observed shortcoming came a little late - that is, it occurred as a result of on the job performance observations. It would have been far better to detect the difference between job performance needs and incumbent abilities in time to provide proper training. In fact, it is this "need for training" that becomes the justification for College assets. Early identification can be accomplished by using Duty Modules constructed in the needs assessment to build an evaluation instrument for use in field evaluation of officer personnel at the appropriate stage of their career where further training (CGSC) would be appropriate. Comparison of these test results with job performance measurements would then define

any shortcoming and provide a basis for need of the College instruction program. While this approach may seem an insurmountable task at first, careful examination should identify it as difficult, but not beyond current expertise in the area, nor does it require an unrealistic commitment of resources given a completed Duty Module structure. Some comparative work is being attempted by the College efforts at pre-test and post-test of students through the use of a comprehensive examination administered at the beginning and end of the school year. While such a procedure, properly constructed and administered, may address the question of student learning during the year, it does not serve the purpose described above since the test is related to current instructional objectives which were not derived from a job analysis. Such a testing procedure is directly related to job tasks which a graduate will be required to perform only to the degree that the current curriculum learning objectives may be directly related to needed job performance skills, a question examined in Section 3-4. However, with a proper front-end analysis and Duty Module structure, this type of testing would be valid for estimates of shortcomings and future curriculum revision as well as a test of student learning. In summary, an improvement in the College ability to define the desired output of their training program and relate it to future needs of the officer graduate can provide valuable management information to be used in justification of resource commitments. A completed front-end analysis and

the use of a Duty Module structure for curriculum development will enhance the current position of the College as a needed training vehicle in the officer professional development system.

The remaining area of resource justification, annual operating resources, will not so greatly benefit from a completed front-end analysis. As long as the allocated resources are directly related to the number of instructional platform hours and the method of instruction, rather than the particular job tasks being presented, Duty Modules can not be of direct support. They will improve definition of the College output which can be translated into improved learning objectives in later phases of the ISD process and increase efficiency of instruction which is discussed in the next section. But it is difficult to see how Duty Module construction will directly assist the College in increasing or maintaining its student resource ratios.

It should be clear at this point that completion of the first stage of the front-end analysis model in Figure 3.1 will assist the College in addressing not only the problem of mission definition, but also, help to justify the need for the College curriculum in the officer professional development cycle.

3-3. Curriculum Construction Using Duty Modules

In considering the broad categories of curriculum content and technique of presentation, Duty Modules should impact heavily on the former, but have only an indirect

Commonality Matrix for Selected
OPMS Specialties

DUTY CODE	MODULES DESCRIPTION	NUMBER OR SPECIALTIES	SPECIALTIES ^b									
			Infantry	Armor	Field Arty	ADA	Aviation	Engineer	Cbt Comm-	Elect	Law Enforc	Tac/Str/Intel
A-2	Performs general administration	47	X	X	X	X	X	X	X	X	X	X
A-5	Supervises a staff selection, detachment, or office	47	X	X	X	X	X	X	X	X	X	X
B-4	Performs officer personnel management functions at departmental level	33	X	X	X	X	X	X	X	X	X	X
E-1	Trains troops and/or civilian employees in units and activities	44	X	X	X	X	X	X	X	X	X	X
W-7	Provides advice and assistance for Army reserve components	30	X	X	X	X	X	X	X	X	X	X
W-8	Represents U.S. forces in military standardization activities with other countries	47	X	X	X	X	X	X	X	X	X	X
A-3	Exercises military command authority	26	X	X	X	X	X	X	X	X	X	X
A-10	Counsels & evaluates subordinates as troop leader & takes action on personal problems	26	X	X	X	X	X	X	X	X	X	X
A-11	Supervises troop appearance & care & maintenance of material & facilities in unit	26	X	X	X	X	X	X	X	X	X	X
N-1	Prepares & conducts formal instruction in a school	26	X	X	X	X	X	X	X	X	X	X
N-2	Conducts ROTC activities at civilian education institution	37	X	X	X	X	X	X	X	X	X	X
F-1	Performs supply operations at consumer unit level	24	X	X	X	X	X	X	X	X	X	X
W-9	Represents U.S. forces in military standardization activities with other countries	29	X	X	X	X	X	X	X	X	X	X
E-2	Performs training staff functions	16	X	X	X	X	X	X	X	X	X	X
E-3	Performs force development functions in general staff or other coordinating staff	16	X	X	X	X	X	X	X	X	X	X
A-7	Performs special staff administrative and adjutant type functions	16	X	X	X	X	X	X	X	X	X	X
A-8	Directs, coordinates & supervises a staff	16	X	X	X	X	X	X	X	X	X	X
A-9	Performs executive staff secretary functions	17	X	X	X	X	X	X	X	X	X	X
K-2	Conducts service or operational test & evaluation of new equipment and material	17	X	X	X	X	X	X	X	X	X	X

a. "Test Data Bank Index," (Washington: American Institutes for Research, October 1975.

b. Aviation was not an OPMS specialty at the time of the Duty Module Survey.

effect on the latter. Similar to the previous discussion of Duty Modules in support of operating resources, Duty Module concepts are not directly concerned with modifying or improving the manner of presenting instruction. However, the effect of a completed needs assessment and an accompanying Duty Module structure could have a significant impact on modification of course content through improvement of both the curriculum instructional objectives and the organization of the curriculum. The effect of Duty Modules will first be examined in the content of curriculum construction without regard to existing courses. Just as in the preceeding sections, the first stage of the front-end analysis model developed in Chapter 2 was applied to major issues facing the College. The second stage of this model can be applied to curriculum construction and modification. Specifically, the latter stage depicted in Figure 3.2 identifies those activities that comprise curriculum construction from an existing Duty Module base. By applying the latest Duty Module structure formulated by ARI and the associated data of criticality, commonality, and time and level of performance, an attempt will be made here to examine the general organization of a curriculum based on Duty Modules. The major shortcomings to this approach and possible corrective actions will be addressed in Section 3-5 following a comparison of the current curriculum organization with the hypothetical one constructed from Duty Modules.

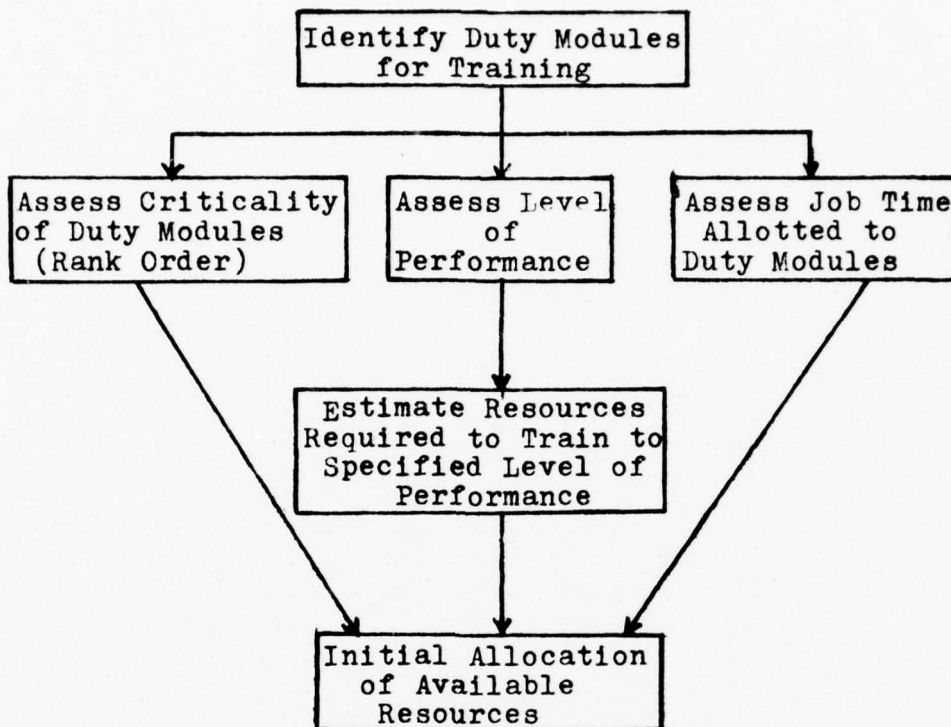


Figure 3.2

Second Stage of Front-End Analysis Model

A strict consideration of the Duty Module results leads one to presuppose a curriculum consisting of two general subject categories:

- a. general subject matter pertinent to officers from a wide spectrum of OPMS specialties, and
- b. specialized subject matter pertinent to smaller segments of OPMS specialties and in some cases peculiar to a single specialty.

The reader should be cautioned at this point against correlating the two-part structure suggested above with the existing College curriculum of core professional Development Courses (PDC) which are mandatory instruction for all specialties, and the elective Advanced Professional Development Courses (APDC). The difference is considerable, not only in composition, but more importantly in that no "elective" concept is implied in the hypothesized curriculum. In a Duty Module curriculum the specialized subjects may, in fact, be mandatory for officers of a specific OPMS specialty. Before continuing, an assumption must be made that a needs assessment would have previously eliminated Duty Modules or subtasks unnecessary for training, and the remaining high commonality Duty Modules listed in Table 3.2 would be incorporated into the curriculum. That is, the first step of the model in Figure 3.2 is complete and our discussion will deal with the full Duty Module structure. The "common" subjects indicated by Duty Module analysis are identified by an examination of the commonality matrix in Table 3.1. This table depicts those Duty Modules (Table Rows) which survey results show have the greatest common application across officer OPMS specialties in rank order against the twelve most densely populated OPMS specialties represented in the last seven student populations of the College. These specialties represent 80% of the current College student body.

Only Duty Modules which are common to sixteen (16) or more of the forty-seven (47) specialties surveyed are depicted. Similarly, information for all specialties and all Duty Modules can be extracted from the Duty Module data base addressed in Chapter 2. It is immediately apparent that the "A" series of Duty Modules (Command Management, General Management and Administration) have a commonality across the majority of specialties and in some cases, A-2, 3, 5, 10 and 11, across all specialties.

Selection of the point at which Duty Modules are no longer designated for core curriculum subjects must be made by curriculum managers and would be based upon commonality between specialties and the percentage of students being served in these primary and/or alternate specialties. For example, Duty Module A-9, *Performs executive staff secretary functions*, is common to seventeen (17) OPMS specialties and only 50% of the current College student body is represented by these specialties. Thus, it would appear inappropriate to provide instruction in this area to all students. Careful examination of the remaining commonality information in the Duty Module data bank would provide additional correlations between Duty Modules and OPMS specialties, thus, allowing further curriculum structure of courses in a descending order of commonality to specialties. For example, the commonality matrix in Table 3.1 suggests a curriculum structure as follows:

Table 3.2

Curriculum Structure

General Subjects

Duty Modules:

A-1 thru A-5, A-10, A-11 B-4, E-1, W-7, W-8
--

OPMS Specialties:

All tabled specialties

Specialty Subjects

Duty Modules:

F-1, N-1, N-2

E-2, E-3

W-9

OPMS Specialties:

11-14, 21, 25, 31, 35 41, 91, 92

11-14, 21, 25 31, 91, 92

11-14, 21, 25, 31, 91

Duty Modules:

A-7

A-8

OPMS Specialties:

11-14, 25, 41, 91

11-14, 21, 25, 31, 92

Duty Modules:

A-9

K-2

OPMS Specialties:

11-14, 21

11-14, 21, 31

The remainder of the curriculum would similarly be constructed from other Duty Modules covering all OPMS specialties. It should be obvious that such a structure would represent a large number of subjects and encompass all of the OPMS specialties. No attempt has yet been made to accomplish more than organizationally efficient grouping of Duty Modules selected for training in the first step of Figure 3.2.

Once the identification of Duty Modules and respective student populations has been made, the remaining steps provide for the allocation of resources to each of the instructional Duty Modules by using the elements criticality, level and time of performance, and the estimate of resources required for instruction to support each Duty Module. With the exception of resource availability, this information is provided in the Duty Module data bank. Table 3.3 lists the average criticality measure for Duty Module A-2, Performs general administration, under both combat and garrison conditions.

Table 3.3
Criticality Values for Duty Module A-2

Positions	Combat	Garrison
All positions surveyed	1.7	2.3
Field grade positions (04 and 05)	1.6	2.1

Source:

"Test Data Bank Index," (Washington: American Institutes for Research, October 1975).

In a similar form, time and level of performance data can be extracted from the Duty Module data bank for selected OPMS specialties, officer grade, duty positions or various other survey variables. As an example, Tables 3.4 and 3.5 provide extracted information on the level of performance for Duty Module A-2, Performs general administration, for officers in the grade of Major and Lieutenant Colonel respectively. The only remaining element of information required before allocation of resources would be the "estimate" of resources required to provide instruction in a specific Duty Module for the level of training identified. With these elements of critical information, the school management can carry out the final step in this phase, allocation of resources to the curriculum structure. Thus, instruction to support Duty Module A-2, Performs general administration, would be directed at a variety of levels (Do and Supervise, Supervise, and Direct) and would carry a significant priority in resource allocation based on the criticality ratings. Available resources will ultimately dictate elimination of some Duty Modules for training; however, this selection can be made more intelligently by use of the Duty Module associated data. It should again be noted that the specific tasks listed here for A-2 may or may not have been identified in the previous needs assessment as tasks needing additional training. For example, task A-2-f, Establish and operate a suspense system, may not require formal training. The allocation of resources

Table 3.4

Level of Performance

Partial Composite-For 112 Officers in Authorized Grade of Major						
Date: 12 June 1973	Percentages					
DUTY MODULE A-2 Performs general administration	N/A	Direct	Supervise	Do and Supervise	Do	Assist
a. Prepare administrative SOPs and instructions.	9	3	11	51	15	11
b. Monitor security of classified documents.	31	3	18	24	10	14
c. Prepare and review administrative correspondence, memoranda.	4	2	5	57	28	4
d. Establish and operate a distribution system for messages, correspondence & documents.	36	13	23	11	5	12
e. Screen incoming correspondence & route for action or information.	22	7	15	26	21	9
f. Establish and operate suspense system.	20	12	23	20	18	7
g. Authenticate orders and official correspondence.	49	3	8	12	14	14
h. Establish and post files of records & regulations.	20	12	44	9	12	3
i. Review, interpret and apply directives & information.	7	3	6	53	28	3
j. Schedule appointments, conferences, other such activities.	16	8	9	35	24	8
k. Provide for reproduction and duplication services.	46	11	20	5	4	14

Source:

John D. Sitterson and Joseph O. Wintersteen, Technical Report, "Results of Field Survey to Evaluate an Experimental Set of Officer Duty Modules," (Arlington: American Institutes for Research, January 1974), Appendix K.

Table 3.5

Level of Performance

Composite for 56 Officers in Authorized Grade of Lieutenant Colonel						
Date: 12 June 1973	Percentages					
DUTY MODULE A-2 Performs general administration	N/A	Direct	Supervise	Do and Supervise	Do	Assist
a. Prepare administrative SOPs and instructions.	5	27	20	30	7	11
b. Monitor security of classified documents.	13	21	25	25	2	14
c. Prepare and review administrative correspondence, memoranda & reports	4	27	5	50	11	4
d. Establish and operate a distribution system for messages, correspondence & documents.	25	29	21	16	0	9
e. Screen incoming correspondence & route for action or information.	13	25	27	20	11	5
f. Establish & operate suspense system.	11	32	32	13	9	4
g. Authenticate orders & official correspondence.	36	9	5	23	23	4
h. Establish and post files of records & regulations.	16	32	32	9	5	5
i. Review, interpret & apply directives & information.	5	14	9	50	18	4
j. Schedule appointments, conferences & other such activities.	13	14	14	38	16	5
k. Provide for reproduction and duplication services.	13	63	25	0	0	0

Source:

John D. Sitterson and Joseph O. Wintersteen, Technical Report, "Results of Field Survey to Evaluate an Experimental Set of Officer Duty Modules," (Arlington: American Institutes for Research, January 1974), Appendix K.

made at this point is a rough attempt at properly aligning the curriculum into priority order. This initial allocation must be made to allow Phases II and III to progress; however, refinement of these resource allocations will occur in Phase II of ISD where instructor, time, and funding requirements are clearly identified for each Duty Module during design and development of the instruction.

3-4. Comparison of Duty Modules and Current Curriculum

The first sections of this chapter have addressed the use of Duty Modules to identify specific needs of field grade officers and offered an approach to College curriculum design that radically departs from the current College method of determining curriculum. Before examining the weaknesses and strengths of this approach, it is appropriate to make some observations concerning relationships between the hypothetical curriculum structured from Duty Modules and the current College curriculum. The most immediate observation is the departure of Duty Modules from the current College emphasis on core instruction of tactical operations. An examination of a Duty Module structured curriculum shows that instruction in a functional area would be limited to the applicable OPMS specialties. For example, Table 3.6 show the OPMS specialties which would require instruction in maneuver, control, and coordination of tactical operations. These three specialties represent 39% of the current College student body.⁴ Additional tactical functions such as Duty

Module AA-1 (Directs and controls employment of light air defense artillery weapons) would be a base of instruction only for OPMS Specialty 14, Air Defense artillery. Similar situations result for Engineer, Signal and other specialties. This shortcoming in terms of perceived narrowness of tactical instruction to potential command/staff officers is inherent not only to Duty Module methodology, but to any job analysis technique which addresses individual job tasks and not group functions.

Table 3.6

Tactical Operations Commonality				
Duty Code	Modules Description	OPMS Specialty		
		Infantry	Armor	Artillery
		11	12	13
U-1	Directs and controls employment of Infantry & Armor maneuver	X	X	
U-2	Directs & controls mortars	X		
U-3	Directs & controls tactical employment of reconnaissance and scout unit	X	X	
U-4	Directs & controls heat seeking type air defense weapons (Redeye)	X	X	X
U-5	Directs & controls antitank elements	X		
U-6	Participates individually & directly in ground combat	X	X	

Source:

"Test Data Bank Index," (Washington: American Institutes for Research, October 1975).

However, it can easily be corrected by Duty Modules representing "group functions." This topic is addressed in more detail in Section 3-5. It should simply be noted here that:

a. Duty Module surveys conducted to date have not addressed the need for "group tasks" as required in tactical operations.

b. A College curriculum based upon identifiable job position needs for graduates does not indicate that all students receive tactical operations instruction. Even with the development of "group function" Duty Modules, a significant number of students would not require instruction in the tactics Duty Modules since there is no identifiable need for these skills in their specialty area. To clarify this last point, examination of "The Analysis of Graduates' Assignments" study shows 48.9% of the current class are combat arms officers. It is perceivable that Duty Modules developed for a tactics group function would identify these OPMS specialties. Thus, more than half of the current class would not receive the tactics instruction. This topic is pursued further in Section 3-5.

Although direct comparisons between the College curriculum and Duty Modules would be difficult, an attempt to further identify relationships was accomplished by a sample of fifteen existing courses to determine the relationship between course instructional objectives and the current Duty Module structure. These courses were selected as representative of all major departments and Table 3.7 shows

Table 3.7

Comparability Results: Duty Modules vs.
College Curriculum Content

Course	DEPT.	HRS.	Hours Directly Related to D.M.		Hours Devoted to Subjects External to D.M.	
			HRS.	D.M.	HRS	SUBJ.
1102	DCOM	20	20	A-8,C-1,D-1, F-7,G-2,G-5, H-1,V-1,EE-1, KK-4		
2000	DREM	8	8	M-1		
2100	DREM	42	32	E-3,I-1,I-3, I-6,L-1,M-1		
3121	TAC	42	38	A-8,C-1,C-6, D-1,D-2,D-3, D-4,E-3,F-7, C-2,H-1,J-1, M-1	4	Performs Air Force Aviation Staff Functions
3161	TAC	83	79	B-2,C-1,C-6, D-1,D-2,D-3, D-4,F-2,F-4, F-5,F-12,G-2, H-1,H-2,H-3, J-1,V-4,U-6, X-3,AA-1,AA-2, EE-5,EE-10, FF-17,KK-4.	4	Rear Area Protection
4110	DREM	11	11	E-2,F-2,F-4 F-5,F-6,F-7, F-12,FF-6,FF-9		
5102	DUCO	12	0	No direct Relationship	2 2 6 2	Political-Mili- tary Environ. Comparative Social Systems & the Interna- tional Environ. National Power International Forces & Trends

Table 3.7 (continued)

Course	DEPT.	HRS.	Hours Directly Related to D.M.		Hours Devoted to Subjects External to D.M.	
			HRS.	D.M.	HRS.	SUBJ.
5103	DUCO	8	0	No direct relationship		
6103	DUCO	12	4	D-1,E-1,FF-12	2	Organ & roles of Army General Staff
					2	Incorporation of R & D technology in the Army Sys- tems U.S.Military Policy since 1945
7101	DUCO	22	7	A-8,A-12,C-1, C-3,C-8,D-2, E-1,E-3,H-1, H-2,H-3,I-1		
7201	DUCO	12	4.5	C-3,D-2,I-1, W-9	1.5	Organization in Political/mili- tary Decision making in arms transfers
					.5	Foreign Assis- tance Program
					2	Development Assistance Programs
					4.5	Foreign Military Salescase Study
8130		2	2	D-3,GG-2		
8210		1			1	Organization, roles & missions of Military Sea- lift Command
9006B	DCOM	9	5	A-3	2	Search & Seizure
					1	Confessions & Admissions
					1	General Legal Situations

Table 3.7 (continued)

Course	DEPT.	HRS.	Hours Directly Related to D.M.		Hours Devoted to Subjects External to D.M.	
			HRS.	D.M.	HRS.	SUBJ.
9010	DCOM	4			4	Performs Air Force Aviation Staff Functions

the results of an interview survey with course authors who were asked to match their course instructional objectives and program of instruction (POI) hours with the Duty Modules structure listed in Annex B.

Examination of the survey results reveal that a majority of current College POI hours are directly correlated with developed Duty Modules. It is significant that the critical fields of Tactics, Logistics, Intelligence and Command Management are readily correlated. The results imply that these subjects are identifiable both by Duty Modules and the current College curriculum selection process. They do not imply that the same instruction would result under both approaches to curriculum design. The distribution of resources devoted to each subject and the level of instruction might be quite different with Duty Module application. Furthermore, this "comparison" is a very superficial examination of relationships since instructional objectives to support the tasks in Duty Modules have never been derived. Should this be accomplished, it might lead to instruction not currently in the curriculum. Time was not available to approach this comparison in the reverse manner; that is, are all the tasks identified as a need by Duty Module included in the College curriculum? Examination of the Duty Module listing reveals that many tasks have no corollary in the College instruction. Some Duty Modules with very high criticality ratings (for example, Duty Module E-1, trains

troops, which is common to 44 of the 47 specialties) do not receive any significant portion of POI hours. It is just as vividly portrayed that a direct relationship does not exist between constructed Duty Modules and the College curriculum subjects offered by Course 5 (Military Policy Formulation), Course 6 (Military History), Course 8 (Allied and Sister Service) and Course 9 (Profession of Arms). As discussed in Chapter 2, Section 2-4.1, this missing relationship can partly be attributed to the difficulty during job surveys in identification of very general "knowledges" such as Chinese history or naval task force operations. It also can not be ignored that Duty Module construction did not identify a specific need for this information as critical to task performance. This may also be due in part to the limited sample conducted in developing the Duty Module methodology. With a limited sample size and geographical restrictions imposed on the sample by available resources, it is quite possible that job positions requiring this type of knowledge were not surveyed. It is unlikely that an extensive need would be identified in officer job positions for much of the information presented in these courses.

3-5. Weaknesses and Strengths of Using Duty Modules at the College

In previous sections the technique of using Duty Modules to construct a College curriculum was presented as well as some attempt at comparing such a structure with the

current College instruction. It is appropriate to discuss some specific weaknesses and strengths of Duty Modules as they apply to the College curriculum.

3-5.1 Weaknesses

Of immediate concern is the inability of a Duty Module structured curriculum to identify "group" tasks as opposed to individual tasks. As pointed out in the previous section, this critical issue is most evident in consideration of the Tactical Operations (O-U) Duty Modules which would be severely restricted in the OPMS specialties served. Yet, the complete Duty Module listing offers a wide range of combat tasks which appears to adequately cover those tasks necessary in combat. For example, a correlation of the current Duty Module structure with the battalion/command/staff group functions identified as ARTEP tasks was conducted to determine the extent to which necessary combat tasks were specified in existing Duty Modules.⁵ Results depicted in Table 3.8 show that, in fact, those combat actions deemed necessary in preparation of the ARTEP tasks are specified as tasks within the existing Duty Modules. However, the emphasis of the ARTEP activities is toward a coordinated command group/staff action as opposed to individual actions requiring little or no knowledge of the remaining individual jobs. For example, under a strict Duty Module structured curriculum an Infantry officer, OPMS Specialty 11, would not receive training in Duty Module O-KK-1, Directs and conducts ground signal

Table 3.8

Relationship Between Command Group/Staff
Functions and Duty Modules

Command Group/Staff Functions	Module: Sub-Tasks
10-1 Develop plan based on mission	C-1: 0162,0167,0168 D-1: 0236,0238
10-2 Initiate intelligence preparation of the battlefield	C-1: 0157,0159,0160,0162,0163 0164,0165,-166,0167,0168 0169,0170
10-3 Prepare and organize the battlefield	U-1: 0787,0788,0789,0790,0791 0792,0793,0794,0795,0796 0797 U-2: 0804,0807 U-3: 0808,0809,0789,0791,0812 0813,0796,0814,0815,0816 U-4: 0817,0818,0819,0820,0821 0822,0823 U-5: 0824,0825,0827,0828,0829
10-4 Troop lead	U-1: 0794,0795 U-3: 0814,0815 U-5: 0830
10-5 See the battlefield during the battle	C-1: 0159,0162,0164,0166,0167 0168,0169 C-6: 0199,0100,0101,0103 D-1: 0236,0238 U-1: 0787,0788,0789
10-6 Control and coordinate combat operations	U-1: 0789,0790,0791,0792,0793 0794,0796,0798,0800 U-2: 0804,0813 U-4: 0817,0820,0822 U-5: 0829 EE-1: 1044,1053,0154 EE-5: 1092,1104 FF-9: 1292,1295,1299,1300
10-7 Employ fires and other combat support assets	D-4: 0265,0266,0268 F-2: 0321,0322,0326,0329 U-1: 0790,0793,0794,0797,0798 U-2: 0801,0804,0805,0807 U-3: 0813,0814,0816 U-4: 0819,0820,0822 U-5: 0828,0831 AA-1: 0914,0916,0922,0923 AA-2: 0926 EE-1: 1044,1053,1054

Table 3.8 (continued)

Command Group/Staff Functions	Module: Sub-Task
10-9 Manage combat service support assets	F-1: 0301,0311,0315,0317,0318 F-2: 0321,0323,0324,0326,0329 F-3: 0333,0335,0336,0337,0338 0341,0344 F-6: 0370,0371,0372 F-7: 0380,0382,0386,0387
10-10 Secure and protect the task force	C-1: 0157,0162,0164,0165,0166 0167,0168,0170 C-6: 0197,0199,0200,0202,0203 0204,0205 U-1: 0787,0789,0790,0791,0792 0793,0794,0796,0797 U-2: 0801,0804,0807 U-3: 0808 AA-1: 0914,0922 KK-1: 1617,1621,1622,1623,1626 KK-2: 1628,1632,1635,1637
11-11 Troop lead during battle	U-1: 0794,0795 U-3: 0814,0815 U-5: 0830
11-12 React to situations requiring special actions	KK-1: 1617,1619,1621,1622,1625 1626

surveillance, intercept, intelligence and related electronic warfare operations. Yet, it is obvious that a battalion commander must possess these abilities to effectively perform his job. Complete dependence upon specialty trained personnel to handle critical combat operations is not acceptable; thus cross-training is an essential element of the College curriculum especially in those OPMS specialties of combat, and combat support.

Finally, if one notes that it is simply the organization of the individual Duty Modules into functional categories as opposed to organizational categories that has eliminated group actions and, therefore, "cross-training," this problem could be eliminated by defining an organization/group job setting such as the Battalion or Brigade Command/Staff Group and organizing the Duty Modules related to the group as was discussed in the ARTEP analysis. It would then require only a management decision to "cross-train" members of the group in job tasks not specifically identified in the commonality data as directly related to their OPMS designation. Another example of this approach is to extract from the Duty Module data bank the common Duty Modules reflected by those specific jobs comprising the "group action." Table 3.9 lists such data for commanders and staff positions at battalion and brigade level. Since positions in a battalion slice for combat are not included in the table, the listings are not as extensive as the listings in the ARTEP analysis. Also

Table 3.9^a

Duty Modules for Selected Battalion and Brigade
Command/Staff Positions

Position	No. of Off.	Duty Module	Significant ^b Variations
Cdr, Inf Bn or Bde	7	A-1, A-3, A-4, E-1, U-1 X-1	A-10(1) A-11(1)
XO, Inf Bn or Bde	7	A-1, A-4, A-8	E-1(2), U-1(1)
S1/Adjt or Asst	12	A-1, A-5, A-7, B-1 B-2, B-3	A-6(6), O-1(1) W-3(1), J-2 or 3 (1, Avn)
S2 or Asst, Inf Bn or Bde	8	A-2, A-5, C-1, C-2 X-3	
S3 or Asst, Inf Bn or Bde	8	A-2, A-5, D-1, D-2 E-2, E-3	B-1(1), C-5(1) D-3(2), W-3(1)
(Asst) S3 Air, Inf Bn or Cdr	5	A-2, D-3	D-1, (1), D-2(1) E-2(2), H-1(1) X-3(2)
S2 or Asst, Inf Bn or Bde	11	A-2, A-5, F-2, F-3 F-5	F-4(3), F-6(2) W-3(1)
Motor O, Inf Bn or Bde	6	A-2, E-1, F-6	A-5(2)
Comm O, Inf Bn or Bde	8	A-2, E-1, G-1	A-5(2)
Ln O, Inf Bn or Bde	11	W-4	

Source:

a. John D. Sitterson and Joseph O. Wintersteen, Technical Report, "Results of Field Survey to Evaluate an Experimental Set of Officer Duty Modules," (Arlington: American Institutes for Research, January 1974), Appendix I, p.3.

b. Significant variations were those cases where the number of officers in parenthesis did not choose the indicated modules.

Some garrison functions are included in Table 3.9. From the Duty Modules listed as common to positions within the command/staff group and examination of the criticality ratings under combat conditions, a viable tactical operations course could be constructed.

A second weakness of Duty Modules is that of the time lag from survey efforts to construct Duty Modules and execution of the training. As stated in Chapter 2, where general shortcomings of job analysis methods was examined, such a delay can easily result in presentation of outmoded methodology as well as a failure to present recent technological advances in hardware or methodology. This problem can never be completely eliminated by either Duty Module construction or the current jury of experts approach to curriculum structure. However, ARI has made a pronounced effort to minimize these problems by avoiding task association with specific equipment, system, or terminology which may radically change in a short period. For example, Duty Module U-5, Directs and controls anti-tank elements, addresses the basic tasks of anti-tank weapons employment, yet does not tie any task to a specific weapon, such as DRAGON or TOW. The adaption of instructional objectives specifically aimed at these systems would evolve in Phase II, Design, of the ISD process where Duty Modules are transformed into instructional objectives. It should also be noted that little difficulty was encountered in relating Duty Modules to the ARTEP tasks even though

the ARTEP terminology reflects significant departure from terminology prevalent in Army field units in 1973 when the basic Duty Module survey was conducted. Thus, the Duty Module construction has concentrated on the actual elements of a job rather than the current "buzz" words for the element. Excellent examples of this flexibility are provided in the matching of the Intelligence area Duty Module (C-1 and C-6) to the modern ARTEP phraseology of "Prepare the Battlefield" and "See the Battlefield".

Examples are also present that reflect the time-lag problem. One obvious area in the current Duty Module listing is the construction of the Training series of Duty Modules (E-1 thru E-3). Examination of these modules does not reveal tasking that is readily correlated with recent training emphasis on performance oriented training or use of simulators where possible to replace field training. Nor does examination of these and other Duty Modules reveal adequate treatment of the now critical tasks of cost control and resource allocation in training.

Probably, the perceived weakness that is least correctable is the identification of general knowledge skills discussed in Section 3-4. The word "perceived" is used here because it is not clear that any actual need stimulated development of this portion of the College curriculum. Arguments supporting inclusion of these subject in the curriculum would criticize the ability of job analysis to identify these categories of knowledge. However, further

Duty Module work must be conducted with an adequate sample size and improved interview methods designed to solicit those knowledges in the Course 5, 6, 8 and 9 areas that are necessary. Following such an effort, a critical examination of this portion of the curriculum must be undertaken. If the additional survey efforts still do not reveal an identifiable need for subjects in these areas, consideration should be given to their elimination.

A further comment is due here concerning the concept of a training-education spectrum. One can construct such a spectrum as represented in Figure 3.3 with the far right (pure education) representing presentation of theoretical concepts with little or no specific application and the far left (pure training) representing detailed application, similar to many of the TRADOC enlisted MOS courses, with little or no theory.

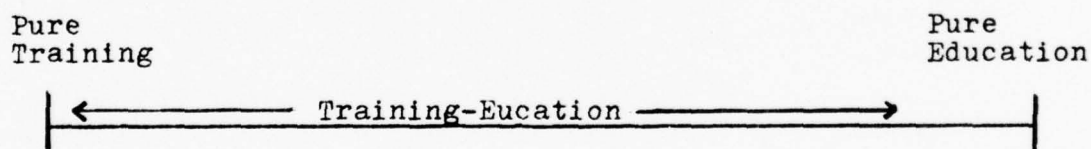


Figure 3.3

As a teaching institution such as the College moves along this spectrum toward the training end, Duty Modules with their strict definition of tasks have more appeal as a foundation for instruction. The reverse is true when one approaches the other end of the spectrum in that it becomes more difficult

to associate learning with either skills or job tasks. It appears that the College is tending toward increased emphasis on training. The location of College instruction on this spectrum will affect the degree of difficulty in applying Duty Modules. The material presented in the courses considered here more properly approaches the education end of the spectrum. The degree to which this type of subject matter is incorporated into the curriculum will be heavily influenced by decisions concerning the direction of the College on the issue of training versus education and there will be a corresponding problem in applying Duty Modules to support this area. A more recent Duty Module survey may have identified these task areas, but it is unlikely that all time lag problems could be eliminated. Curriculum control in this area can be accomplished in Phase V, control, of the ISD Model through selective use of the jury of experts technique. Survey responses solicited from senior Army officers to include the research and development community would alert curriculum designers to changing needs in graduate skills. Caution must be taken that these results do not prematurely or erroneously adjust the curriculum in reaction to changing terminology or weapons systems as opposed to changing needs. The most proper use of these results would be to initiate revalidation efforts in specific Duty Module areas prior to curriculum revision. This process could be accomplished in a relatively short period of time (annually) given a constructed

curriculum developments organization.

A final comment needs to be made concerning the question of minor technical problems in constructing some of the Duty Modules. ARI documentation acknowledges that the date of the OPMS study and the limited sample size used make additional work necessary to validate the early results.⁶ Minor conflicts of tasks among functionally similar job positions do exist in the current listing and most likely result from the limited unit sample size and lack of cross checking efforts. For example, task 0830 (Inspect subordinate personnel, weapons and equipment) can be found in Duty Module U-5, Directs and controls anti-tank elements. Yet, this task is not an element of other Duty Modules related to similar functional actions such as those listed in Table 3.10.

Table 3.10

Task Deficiencies

Duty Module	Description
U-2	Directs and controls mortars.
U-3	Directs and controls tactical employment of reconnaissance and scout units.
U-4	Directs and controls heat seeking type air defense weapons.
EE-1	Directs and controls combat engineer units.

These shortcomings are more technical in nature than theoretical and, while they will never be eliminated completely,

they can be reduced to an acceptable level by further refinement and validation of the current Duty Module catalogue. Further work with the Duty Module data bank is necessary to identify these problem areas. Correlation matrices and statistical difference tests can be effectively used in this regard. One step that will greatly benefit this examination would be to list the Duty Modules which are common to each of the job tasks in the catalogue. It was the use of this technique that allowed identification of task 0830 as not being a part of the Duty Modules listed in Table 3.10.

3-5.2 Strengths

As indicated in Chapter 2, any job analysis technique that produces an inventory of job tasks offers the major advantage of improved definition of desired output, and, thus, an ability to define during a needs assessment the "measurable difference" between job performance requirements and job incumbent abilities. In the special application to curriculum development, it has the additional, and perhaps more important, advantage of identifying the need for training/education. Here at the College it has been the inability to identify these needs or to quantify the desired output that has continually frustrated the curriculum designers.

The problems caused by this failure to complete a front-end analysis will not be raised here other than to comment that curriculum revisions in recent years have been late in providing instructor/authors with adequate time to properly develop course material. Additionally, since no

substantive effort has been completed to identify graduate needs, the revisions may or may not have been related to a valid need. It is also worth noting that a Duty Module related survey of officer personnel in 1975 supports identification of job tasks as beneficial, if not necessary, to understanding and management of duties. As shown in Table 3.11, a Duty Module structure for officer job positions was considered favorable by a high percentage of surveyed officers.

While the questions were not specifically addressed to curriculum construction, they identify the major concern of a job incumbent to know specifically what tasks are to be performed. Current trends toward criterion referenced learning objectives has resulted from a similar need to identify the specific output of training programs and on the job task performance. Possibly, because of its historical significance, the College can continue to absorb major training resources within the TRADOC school system without more precise definition of the College output and demonstrated need for their product. However, efforts to force re-examination of such expenditures under zero-based budget concepts will make the task difficult without a completed needs assessment to include better quantification of training tasks and College output. A duty Module structure to support the College curriculum would greatly assist in this specific area.

Table 3.11

Summary of Results of Supplemental Duty
Module Survey Questionnaire

TOTALS - ALL RESPONDENTS					
(335 Officers, in Authorized Grades of Captain or Above)					
1. Do you think that information describing your job in terms of Duty Modules would have been helpful to you in understanding the functions and requirements of your job when you were first assigned to it?					
Grade	(Nr)	Yes (%)	No (%)	Don't Know (%)	
COL	(18)	7 (38.9)	10 (55.6)	1 (5.5)	
LTC	(64)	37 (57.8)	22 (34.4)	5 (7.8)	
MAJ	(122)	88 (72.1)	26 (21.3)	8 (6.6)	
CPT	(131)	93 (71.0)	32 (24.4)	6 (4.6)	
OVERALL	(335)	225 (67.1)	90 (26.9)	20 (6.0)	

2. Do you think that describing officer jobs in terms of duty modules would be helpful to you when selecting career specialties under the Army's new Officer Personnel Management System (OPMS)?

Grade	(Nr)	Yes (%)	No (%)	Don't Know (%)	
COL	(18)	16 (88.9)	2 (11.1)	0 (0.0)	
LTC	(64)	48 (75.0)	11 (17.2)	5 (7.8)	
MAJ	(122)	101 (82.8)	11 (9.0)	10 (8.2)	
CPT	(131)	103 (78.6)	12 (9.2)	16 (12.2)	
OVERALL	(335)	268 (80.0)	36 (10.7)	31 (9.3)	

3. Would information about the duty modules performed by your subordinates help you to manage and evaluate their work?

Grade	(Nr)	Yes (%)	No (%)	Don't Know (%)	
COL	(18)	14 (77.8)	3 (16.7)	1 (5.5)	
LTC	(64)	53 (82.8)	8 (12.5)	3 (4.7)	
MAJ	(122)	98 (80.3)	18 (14.8)	6 (4.9)	
CPT	(131)	100 (76.3)	22 (16.8)	9 (6.9)	
OVERALL	(335)	265 (79.1)	51 (15.2)	19 (5.7)	

Source:

John D. Sitterson and Joseph O. Wintersteen, Technical Report, "Results of Field Survey to Evaluate an Experimental Set of Officer Duty Modules," (Arlington: American Institutes for Research, January 1974), p. 36.

Functional categorization of instruction is another valuable asset of a Duty Module structured curriculum. For example, examination of the Duty Module listing in Annex B shows groupings into major function areas, such as Tactical Operations (U-1 through U-x). In developing an instructional organization to support these functional areas many of the problems of duplicate instruction and a lack of coordinated instruction can be alleviated. The College is currently moving toward increased functional organization as evidenced by the subcourse concepts developed in the planning guidance for the 1979 curriculum.⁷ But, without a job task structure the danger of duplication of instruction is increased as functional grouping is further emphasized. This results because the instructor/author who theoretically is supposed to be intimately familiar with all instruction preceeding his, in reality can not review properly all other instruction. Thus, duplication of subject matter results without proper controls. Duty Modules offer a solution to reducing duplication by assignment of specific Duty Module responsibility to a department within the school organization and ultimately to a specific instructor/author. Remaining departments and instructor/authors would then be required to obtain approval of that portion of their instruction (as shown in the instructional objectives) directly related to a Duty Module with the responsible agent. For example, if the Department of Management (a hypothetical department) is responsible for Duty Module A-2 listed in Table 3.4, then all instruction

which relates to this module must be approved for instruction by the appointed instructor/author. Such a control will reduce duplication of instruction and result in the more efficient use of College resources.

Coordination of instruction would also be enhanced by a school organization designed to coincide with a Duty Module structured curriculum. Under such an organization, instructors would be assigned directly to the department responsible for the instruction and not separated into departments based on their OPMS specialties. For example, an instruction module in Battalion and Brigade Command/Staff Operations would require instructors for tactics, intelligence and combat service support, all belonging to the same academic department. This differs from the current College philosophy of assigning hours in a block of instruction to different departments. For example, Course 3161 is divided between the Department of Tactics and the Department of Resource Management.

Efficiency improvement from the student aspect of the training program is also achieved in a curriculum structure offered by Duty Modules in that a student spends a minimum of training time in instruction that does not directly support his primary or secondary specialty. Thus, the Medical Service Corps, Transportation Corps, or other similar specialty officers would not devote the majority of their academic efforts to functions they will never perform on the job.

Artillery fire direction, maneuvers of combined arms teams, and intelligence collections and dissemination are examples of current College instruction that under a Duty Module structured curriculum would not be presented to the above specialties. An argument may be raised that even the technical services require some general knowledge/appreciation for the combat functions in order to effectively do their job. Certainly, there is an element of truth to this, but to what degree? Does a Medical Service Corps officer need more than 250 hours of tactics and associated subjects? If so, then why does a combat arms officer only require less than 4 hours of instruction in Medical Service Corps functions?⁸ This question is not posed facetiously, but simply to emphasize that the College may not be efficiently using student academic time. The Medical Service Corps officer and the Army might be better served by additional instruction directly related to his specialty, or, if resources prohibit such an offering, perhaps he should be returned to a utilization assignment.

An implication that arises from considerations of a reduced core curriculum and emphasis on specialty subjects is the idea that a variable training time could result for different OPMS specialties. While this concept may raise some question of traditional procedures, such as a class graduation exercise, it also raises the possibility of reducing the period of time some officers are lost to utilization assignments. A Duty Module structured curriculum does

not suggest an "open entrance" setting which allows different specialties to begin at different times, but it does suggest an "open exit" setting where officers complete the common curriculum and specialty training only as needed to support their duty assignments. Examination of the full Commonality Matrix in the Duty Module data bank suggests that the combat arms specialties would receive the longest periods of training (based on the greatest number of Duty Modules). Unless additional instruction directly related to their specialty was provided, other specialties would complete their training in varying periods shorter than the combat arms specialties.

A final strength must be credited to Duty Module methods for the value associated with a longitudinal data base which can be accessed for management information. The current data base provides correlation data which could be of great assistance to curriculum designers. As continuing work is accomplished, the sample size represented within the data bank will provide excellent opportunities for correlation of OPMS specialty requirements and more efficient design of curriculum modules.

ENDNOTES

Chapter 3

1. Disposition Form from ATSW-TD-AD, U.S. Army Command and General Staff College, "CGSC Mission Analysis," 24 May 1976.
2. Disposition Form, "CGSC Mission Analysis."
3. Letter from General W. E. De Puy, U.S. Army Training and Doctrine Command, untitled, 19 December 1974.
4. Disposition Form from ATSW-TD-AD, U.S. Army Command and General Staff College, "Analysis of CGSC Graduates' Assignments," 24 September 1976.
5. The ARTEP tasks are currently in development and not in a published document.
6. John D. Sitterson and Joseph O. Wintersteeen, Technical Report, "Results of Field Survey to Evaluate an Experimental Set of Officer Duty Modules," (Arlington: American Institutes for Research, January 1974). p. 39.
7. Interview with J. T. Butterfield, Training Development Branch, U.S. Army Command and General Staff College, personal interview, Fort Leavenworth, Kansas, 4 May 1977.
8. "76-77 Catalog," (Fort Leavenworth: U.S. Army Command and General Staff College, undated).

This is an author estimate based on information contained in the catalog.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

4-1. Study Limitations

Prior to a summary of conclusions which may be drawn from the preceeding chapters, it is necessary to comment on constraints which should be applied to interpretation of this study.

Time and resource limitations restricted examination of Duty Module concepts and their applicability to the College. The two major areas affected by this limitation were:

a. The question of costs (or savings) resulting from implementation of the concepts presented herein.

b. Further examination of the existing Duty Module data bank to investigate technical weaknesses of constructed Duty Modules.

In addition, the current sample size of Major and Lieutenant Colonel positions included in the data bank is small. Thus, the aggregate results used in this study included a significant number of officers who would not represent a typical student.

Finally, it would be less than honest to avoid mention of possible study bias which naturally occurs from student observations of their own curriculum. In general, this bias reflects a definite need for the College as a major milestone

in officer professional development, but foresees that an improved curriculum offering more efficient use of College resources and student time will result from a proper systems engineering.

4-2. Conclusions and Recommendations

In summary, it may be concluded that:

a. A comprehensive front-end analysis of the College should begin immediately. Previous attempts have been inadequately supported by necessary resources and lacking in command emphasis.

b. The TRADOC ISD process can, with limited College peculiar modifications, be used as the model for front-end analysis.

c. It is feasible and useful to use Duty Modules as a basis for definition of job tasks and curriculum construction; however, the current Duty Module structure exhibits significant shortcomings in that it:

(1) Does not identify in task statements all of the "general knowledges" that are required by officers in performance of their duties and represented within the College curriculum by Course 5 (Military Policy Formulation), Course 6 (Military History), Course 8 (Allied and Sister Services) and Course 9 (Profession of Arms).

(2) Does not reflect the "group" actions of a command/staff group or the necessity for "cross-training" in combat operations.

(3) Contains a number of technical deficiencies attributed to the limited sample size and date of the OPMS survey.

d. Revision of the Duty Module catalogue and construction of a "group" Duty Module for command/staff actions will resolve the shortcomings of technical deficiencies and group actions listed above; but, additional methodology must be developed to examine "general knowledge" needs.

e. A complete front-end analysis of the College should employ "jury of experts" surveys in a limited role to supplement Duty Module definition of graduate needs.

It is recommended that the College initiate front-end analysis by:

a. Providing a fully staffed and professionally trained organization to supervise curriculum systems engineering efforts.

b. Tasking the Army Research Institute to support the front-end analysis by:

(1) Validation of the current Duty Module catalogue against OPMS job assignments held by field grade officers with 10 or more years of service.

(2) Constructing a Duty Module or combination of Duty Modules to define group performances, specifically those actions of a battalion or brigade command/staff group.

(3) Development of a methodology for a quantitative description of "general knowledges" beneficial to field

grade officers in job performance.

(4) Undertaking an in depth statistical analysis of the existing Duty Module data bank to identify OPMS correlations and significant variations which will assist in curriculum design and to identify job tasks requiring further examination for validity.

c. Conducting a cost and operational effectiveness analysis (COEA) of implementing Duty Modules in curriculum design at the College.

d. Conducting a "pilot" course using constructed Duty Modules and the ISD process to validate their applicability to the College.

4-3. Concluding Comment

As in any feasibility study which professes a significant deviation from the system "status quo," it is possible for the reader to concentrate on the study deficiencies to such a degree that the benefits derived from external examination of the system under review (the College) are ignored. One may not agree with the specifics of Duty Modules (or any job analysis results) as a basis for curriculum analysis and review at the College; but, at the very least, one hopes this effort will bring attention to the sad neglect of a comprehensive front-end analysis to support the College. The continuation of a significant expenditure of resources to support the College will, in the long run, depend on some form of quantification of the needs of field

grade officers. Duty Modules offer an attractive approach to this problem and have the major advantage of being beyond the "drawing board" stage. Duty Modules are a reality and the effort in time and resources to apply these concepts to the College is far less than that required to develop new methodology. Thus, the real choice most likely lies between Duty Modules and a continuation of the "status quo".

Annex A

Historical Background

Initial efforts to implement systems engineering concepts at the Command and General Staff College. (CGSC) began in 1968 in compliance with Continental Army Command (CONARC) Regulation 350-100-1, dated 1 February 1968. The regulation and school faculty acknowledged that it would take up to 5 years to complete systems engineering of the curriculum.¹

The letter, "Systems Engineering of Training, 10 July 1968, selected the chief of staff of a division for task analysis. Questionnaires were distributed to students, author/instructors, supervisory personnel, former graduates, and general officers in key positions throughout the Army. While this survey identified a large number of tasks associated with the position, the major portion of tasks performed by College graduates was not identified. This methodology was abandoned in favor of a complete task listing for all positions to which a graduate might be assigned.²

This effort continued until July 1971. The College requested exemption from the systems engineering requirement imposed by CONARC Regulation 350-100-1 because it was felt that systems engineering techniques were not appropriate for non-MOS producing courses such as the CGSC curriculum. The

enormity of the project and its incumbent expenditure of resources were felt to be beyond the capability of the College.³ CONARC denied the request and directed that the systems engineering effort continue. CONARC rationale was that the College did not have sufficient evidence to warrant exemption. Additional research was directed toward command and general staff positions at division, corps, Army and support command levels and the general knowledge components to perform representative duty positions to which CGSC graduates might be assigned.⁴

In March 1972, the College requested an in depth research project to determine a means for implementing systems engineering methodology.⁵ In response to this request, CONARC sent a team from the Human Resources Research Organization (HumRRO) to determine the magnitude of the problem. The team recommended that CGSC begin a step-by-step systems engineering of Course 1 relying on current efforts by HumRRO in Work Unit CABCON, "Knowledges, Skills, and Thought Processes of the Battalion Commander and Primary Staff," and Work Unit MODMAN, "Model for Systems Engineering of Man-Ascendent Jobs." The report included a recommendation that CGSC make a sincere effort to implement the full intent of the systems engineering activity. The request for an independent research study was denied.⁶

During Academic Year 72/73, a concerted effort was made to systems engineer Course 1 of the Regular Course

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JUN 77 J R NORRIS, J R ROBBINS

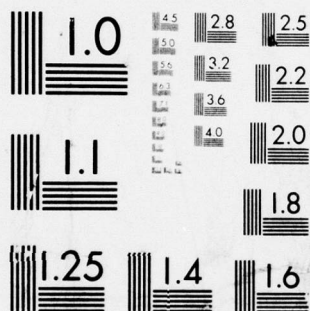
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curriculum. The systems engineering staff was increased to seven people and given greater visibility; however, sufficient technically qualified personnel were not available and this deficiency continued to impede progress.⁷

Additionally, students expended over 3200 manhours developing draft job analysis questionnaires for the positions of division commander, division support command commander and the five principle division staff officer positions.⁸ The questionnaires were ready for distribution to the field in September 1973. The Commanding General reviewed the questionnaires and directed that they not be distributed.⁹ This action terminated all College staff actions of major importance that were specifically directed at a comprehensive systems engineering of the curriculum. Follow-on efforts were redirected to less extensive requirements, primarily in the form of student study projects such as:

A. "Criteria Development and Decision Rules for Identifying Knowledge Components to be Included in CGSC POI."¹⁰

B. "Course Design of the Command and General Staff Officers Curriculum: A New Approach."¹¹

C. "Staff Operations: An Analysis of Staff Functions to Determine the Basic Skills and Knowledges Therein."¹²

D. "A Model Curriculum Development at the Command and General Staff College."¹³

While the study projects identified a number of important problems and provided knowledge areas in which graduates

should be proficient, they were not extensive enough to represent a complete systems engineering approach. These and other projects were completed by students and maintained on file for use in the compilation of a knowledge components data base at a later date. This was the extent of the effort into Academic Year 75/76.

In the spring of 1976, the College initiated a significant attempt to examine the College mission and implementing TRADOC guidance.¹⁴ Although no major issues were resolved, the problems of mission statement were better defined and prepared the College for addressing the job analysis steps of the recently received TRADOC ISD Model. In July 1976, the College sent out the "100 Colonels (Supervisors) Survey" in an effort to begin the process of job analysis required for the ISD model. Addressees were asked to submit comments on seven questions:

- "a. Are the mission and objectives appropriate for CGSC--is this the sort of professional military education needed by the national military establishment?
- b. What critical skills should a major/lieutenant colonel possess?
- c. How well does the curriculum address the needs you perceive?
- d. In what direction should CGSC head in the future?
- e. To what extent should CGSC develop students' storehouse of knowledge; e.g., should combat support officers have a thorough knowledge of Soviet weapons systems, doctrine, tactics and organization?
- f. To what extent should CGSC develop students' higher order skills?

g. Should CGSC focus mainly on specific OPMS requirements or general professional education?"¹⁵

Because of the unstructured form of the questionnaire, it was not possible to subject the responses to any significant statistical analysis. In addition, attempts to derive a task list of critical skills from the responses proved to be impossible because of the diversity of task constructions. Also, there was a lack of consensus on all but a few key skills which were identified using a critical incidence scoring technique. The conclusion was reached that the diversity of responses rendered the survey of little value in accomplishing the job analysis stage of the ISD Model.

A simultaneous attempt was made to obtain job position information on College graduates by surveying positions held by the last eight CGSC classes.¹⁶ This information was to be used in conjunction with the "100 Colonels (Supervisors) Survey" and the student projects previously mentioned in an effort to complete Phase I of the ISD Model. However, without the structured task list which was to be the output of the Colonels survey, the overall goal could not be achieved. Furthermore, the duty position survey added to the questions being raised about curriculum content when it revealed that the distribution of graduates to duty positions did not support TRADOC emphasis on training graduates to be battalion and brigade commanders.¹⁷

Thus, in October 1976, the College was still faced with the significant need for a comprehensive front-end analysis of the College. Quantification of graduate needs had not been accomplished and the questions raised during the College mission analysis were still unresolved.

ENDNOTES

Annex A

1. Disposition Form from ALLRI, U.S. Army Command and General Staff College, "Report on Systems Engineering," 10 July 1968.
2. Letter from ALLRI, U.S. Army Command and General Staff College, "Systems Engineering of Training," 15 July 1968.
3. Letter from ATSCS-RI, U.S. Army Command and General Staff College, "Systems Engineering of Training (Course Design)," 13 July 1971 with 1st Indorsement, 17 August 1971.
4. Letter, "Systems Engineering of Training (Course Design)."
5. Letter from ATSCS-RI, U.S. Army Command and General Staff College, "Request for Behavioral and Social Sciences Research," 29 March 1972.
6. Trip Report from Human Resources Research Organization, "Research Assistance in Systems Engineering Courses of Instruction," 26 April 1972, pp. 3 & 4.
7. Interview with J. T. Butterfield, Training Development Branch, U.S. Army Command and General Staff College, personal interview, Fort Leavenworth, Kansas, 4 May 1977.
8. Memorandum for Record for ATSW-RI, U.S. Army Command and General Staff College, "Visit to P & E Division by MG Cushman," 13 September 1973.
9. Memorandum for Record.
10. Phillip H. Bosma, Delvin M. Campbell, and Carl O. Magnell, Student Research Report, "Criteria Development and Decision Rules for Identifying Knowledge Components to be Included in CGSC POI," (Fort Leavenworth: U.S. Army Command and General Staff College, June 1974).
11. R.D. Duffie and others, Student Research Report, "Course design of the Command and General Staff Officer Curriculum: A New Approach." (Fort Leavenworth: U.S. Army Command and General Staff College, June 1974).
12. J. T. Butterfield, W. R. Cox, and D. D. Kidd, Student Research Report, "Staff Operations: Staff Functions to Determine the Basic Skills and Knowledge Therein," (Fort Leavenworth: U.S. Army Command and General Staff College, 10 May 1974).

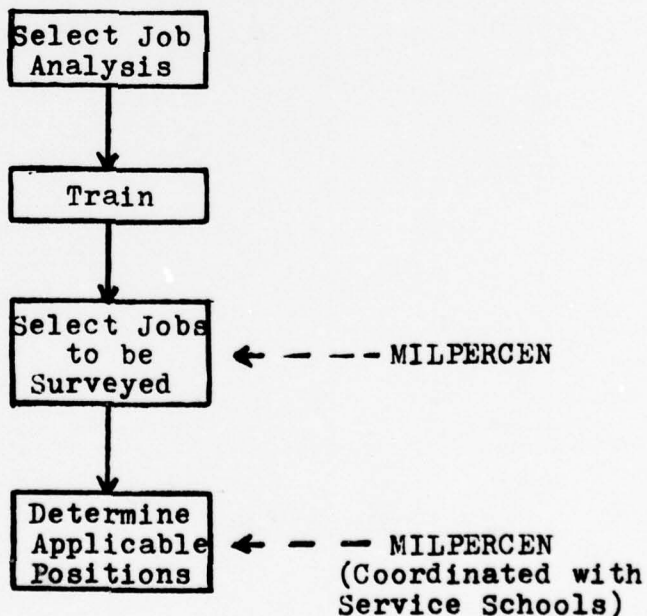
13. Richard I. Carlson and James E. Chapman, Student Research Report, "A Model Curriculum Development at the Command and General Staff College," (Fort Leavenworth: U.S. Army Command and General Staff College, April 1974).
14. Disposition Form from ATSW-TD-AD, U.S. Army Command and General Staff College, "CGSC Mission Analysis," 24 May 1976.
15. Disposition Form from ATSW-TD-AD, U.S. Army Command and General Staff College, "100 Colonels (Supervisors) Survey," 24 September 1976.
16. Disposition Form from ATSW-TD-AD, U.S. Army Command and General Staff College, "Analysis of CGSC Graduates' Assignments," 24 September 1976.
17. Disposition Form, "Analysis of CGSC Graduates' Assignments."

Annex B

Duty Module Methodology

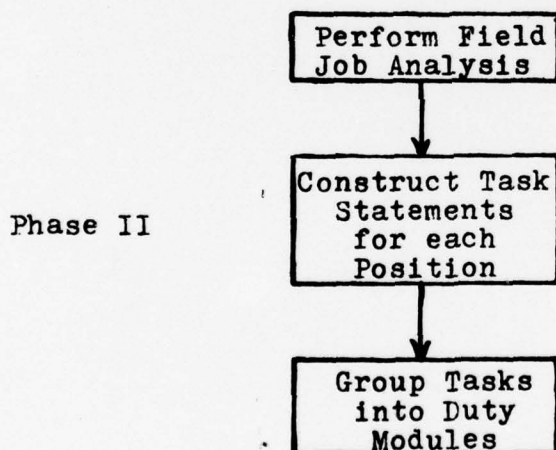
Duty Modules were constructed using job analysis techniques which followed standard job survey techniques as employed for a considerable number of years in examination of "work settings" in civilian industry. The process can essentially be considered in three stages: preparation for the survey, the survey itself resulting in Duty Modules, and a validation phase. Examination of actions in each of these phases are considered below.

Phase I



Comment: Retired Army officers who were familiar with the jobs to be analyzed were selected as job analysts. In

addition to their background in job analysis techniques, each officer completed a one week training program with particular attention devoted to the use of action verbs to express specific work activities.¹ The most critical officer jobs within each OPMS specialty were selected by the Officer Personnel Directorate, Military Personnel Center (MILPERCEN) through consultations with appropriate service schools. Using these jobs, a list of positions representative of the basic job lists was prepared from the current Army structure and a sample selected for interview. It should be noted that the sample size was initially small based on the developmental stage of Duty Module concepts as well as limited resources.



Comment: Field interviews were formally conducted as necessary using a variety of survey instruments to assist in construction of Duty Modules. General concepts applied to their development were:

1. Tasks must be meaningful to the user.
 2. Modules must be independent of each other.
 3. Tasks must cover duties peculiar to a given position.
 4. Action verbs describing each task must be specific.
 5. Do not use verbs that describe a specific skill level.
 6. Use technical job language that incumbents will recognize.
 7. Incumbents need not perform all tasks in a given module for that module to be applicable to a position.²
- By following these guidelines, the job analysts constructed task statements that could be clustered both vertically and horizontally. Each task was written at the action or "doer" level. Individuals at different vertical levels within an organization might be assisting in this task, doing the task by himself, supervising others, or directing others to perform the task. To facilitate the vertical clustering of tasks, columns were placed to the right of the tasks list in each module for respondents to indicate level, direct, supervise, do and supervise, do, assist and not applicable. A similar construction of horizontal clusters was accomplished by combining or consolidating tasks which were sufficiently related that they can be performed by the same individual without extensive additional training.

A sample result, Duty Module A-2, is shown in Table B.1 in the form used for field verification. The most recent

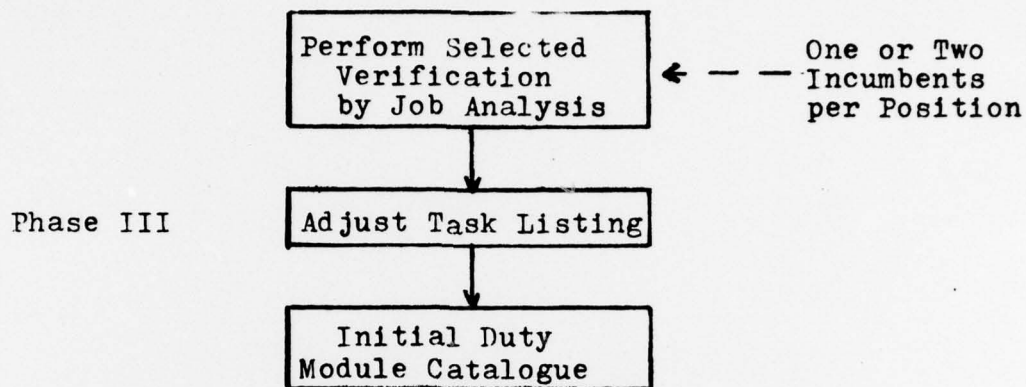
Table B.1
Duty Module A-2
Performs General Administration

	Direct	Supervise	Do and Supervise	Do	Assist
a. Prepare administrative SOPs and instructions.			X		
b. Monitor security of classified documents.			X		
c. Prepare and review administrative correspondence, memoranda, and reports.			X		
d. Establish and operate a distribution system for messages, correspondence, and documents.		X			
e. Screen incoming correspondence & route for action or information.				X	
f. Establish and operate suspense system.			X		
g. Authenticate orders & official correspondence.		X			
h. Establish and post files of records and regulations.		X			
i. Review, interpret, & apply directives and information.				X	
j. Schedule appointments, conferences, and other such activities.				X	
k. Provide for reproduction and duplication services.					

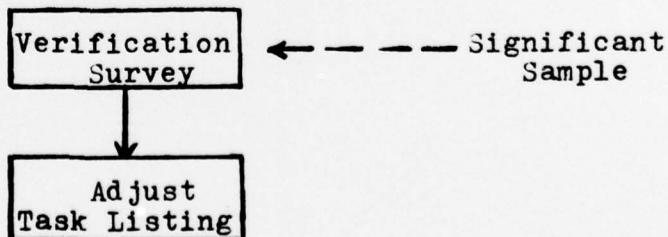
Source:

John D. Sitterson and Joseph D. Wintersteen, Technical Report, "Results of Field Survey to Evaluate an Experimental Set of Officer Duty Modules," (Arlington: American Institutes for Research, January 1974), p.15.

catalogue list of Duty Modules is attached in Appendix 1 to this Annex. The complete Duty Module catalogue is too extensive to be reproduced here and may be found in the bibliography.



Comment: Once the job analyst completed the Duty Modules in accordance with the guidelines and in consonance with the task statement construction process, the modules were verified by an initial field job analysis of one or two incumbents for each OPMS position identified by MILPERCEN in Phase I. The results of these interviews formed the basic Duty Module catalogue which is periodically updated by further verification surveys still being conducted under Phase III and depicted below.



Also collected during verification surveys was information, shown in Table B.2, which would be of assistance to OPMS managers in determining the time spent on each Duty Module and its importance under combat or garrison conditions.

Table 1 2

Applicability, Time, and Criticality Table

1. Do module and tasks apply to your position:	Little or no Applicability	Some of Tasks	Majority of Tasks	All of Tasks
a. In actual or simulated combat operations and support?				X
b. In garrison and other than <u>a</u> ?				X

2. Percent of total time spent on this duty module:	0-9%	10-29%	30-49%	50-69%	70-89%	90-100%
a. Same as 1a		X				
b. Same as 1b		X				

3. Relative Criticality of this part (module) to entire job:	Least Critical	Average	Critical	The Most Critical
a. Same as 1a			X	
b. Same as 1b				X

Source:

John D. Sitterson and Joseph D. Wintersteen, Technical Report, "Results of Field Survey to Evaluate an Experimental Set of Officer Duty Modules," (Arlington: American Institutes for Research, January 1974), p. 15.

ENDNOTES

Annex B

1. Arthur L. Korotkin and others, Technical Report, "Army Officer Duty Module Manual," (Washington: American Institutes for Research, October 1975), p.5.
2. Korotkin, "Army Officer Duty Module Manual," pp. 12-3.

Material in this annex is extracted rather heavily from the Duty Module references listed in the bibliography. Due to the technical nature of the information, this annex closely parallels discussions in the references.

Appendix 1

Annex B

Catalogue List of Army Officer Duty Modules
(by Area).

A. COMMAND MANAGEMENT, GENERAL MANAGEMENT, AND ADMINISTRATION

- A-2 Performs general administration
- A-3 Exercises military command authority
- A-5 Supervises a staff section, detachment, or office
- A-6 Performs headquarters management staff functions
- A-7 Performs special staff administrative and adjutant type functions
- A-8 Directs, coordinates, and supervises a staff
- A-9 Performs executive staff secretariat functions
- A-10 Counsels and evaluates subordinates as troop leader and takes action on personal problems
- A-11 Supervises troop appearance and care and maintenance of materiel and facilities in unit
- A-12 Performs overall programming evaluation and review staff work
- A-13 Performs management analysis staff functions

B. PERSONNEL

- B-1 Performs manpower management staff functions
- B-2 Performs personnel management staff functions
- B-3 Performs staff functions pertaining to personnel services.
- B-4 Performs officer personnel management functions at departmental level
- B-5 Directs or coordinates postal services for an installation or command

C. INTELLIGENCE

- C-1 Performs combat intelligence staff functions
- C-2 Performs counterintelligence and security staff functions in a general staff or coordinating staff
- C-3 Performs foreign area strategic intelligence staff functions
- C-5 Performs aerial surveillance staff functions in a general staff or other coordinating staff
- C-6 Performs intelligence staff functions concerning ground reconnaissance and surveillance
- C-7 Directs and conducts operations of counterintelligence unit
- C-8 Conducts military intelligence collection operations in the field

D. OPERATIONS AND PLANS (STAFF)

- D-1 Performs operations staff functions in a General Staff or other coordinating staff
- D-2 Performs operations planning staff functions in a General Staff or other coordinating staff
- D-3 Performs air support staff functions in a General Staff or coordinating staff
- D-4 Coordinates fire support for unit tactical operations
- D-6 Directs school troop unit operations at a service school center

E. ORGANIZATION, TRAINING

- E-1 Trains troops and/or civilian employees in units and activities
- E-2 Performs training staff functions
- E-3 Performs force development functions in general staff or other coordinating staff

F. LOGISTICS (STAFF, CONSUMER UNITS, AND COMPOSITE COMBAT SUPPORT COMMAND)

- F-1 Performs supply operations at consumer unit level
- F-2 Performs supply staff functions
- F-3 Performs equipment maintenance and readiness staff functions in a general staff or other coordinating staff
- F-4 Performs transportation staff functions in a general staff or other coordinating staff
- F-5 Performs logistical services staff functions in a general staff or other coordinating staff
- F-6 Performs staff functions pertaining to motor vehicle maintenance and operations
- F-7 Performs general logistics staff functions
- F-8 Performs staff functions concerning procurement of materiel
- F-10 Reviews, processes, and coordinates military construction budgetary planning and programming at Major command or departmental level
- F-11 Plans, staffs, and coordinates military base and facility engineering requirements
- F-12 Directs and controls operations of a combat support command or comparable composite combat service support organization

G. COMMUNICATIONS AND ELECTRONICS

- G-1 Serves as Battalion or Brigade Communications Officer
- G-2 Performs communications-electronics (CE) staff functions
- G-3 Directs and controls operations of mobile communications support unit
- G-5 Establishes and controls mobile area signal center

- G-6 Manages communications-electronics facilities and services at major command post or operations center
- G-7 Directs and controls fixed telecommunications center
- G-8 Establishes and controls communications-electronic services for military posts and comparable fixed installations

H. CIVIL-MILITARY AFFAIRS

- H-1 Performs civil-military staff functions
- H-2 Plans and controls civil affairs operations
- H-3 Plans and coordinates psychological warfare operations
- H-4 Performs attache type intelligence functions

I. COMPTROLLERSHIP AND PROGRAM/PROJECT/PRODUCT MANAGEMENT

- I-1 Performs program and budget staff functions
- I-3 Conducts cost studies and analyses of financial management
- I-6 Develops and designs budgetary methods and procedures for financial management systems

J. ARMY AVIATION

- J-1 Performs Army aviation staff functions
- J-2 Pilots rotary wing aircraft
- J-3 Pilots fixed wing aircraft
- J-4 Directs and controls Army aircraft maintenance
- J-5 Performs Army aviation safety duties

K. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

- K-1 Performs staff functions pertaining to research, development, tests, and evaluation of new equipment and materiel
- K-2 Conducts service or operational test and evaluation of new equipment and materiel
- K-3 Coordinates test and evaluation of new equipment and materiel
- K-6 Coordinates or conducts research, development, and engineering for developmental materiel or system
- K-7 Performs or assists in overall life-cycle management of special materiel project or product

L. OPERATIONS RESEARCH AND SYSTEMS ANALYSIS

- L-1 Performs operations research analysis

M. ADP MANAGEMENT AND PROGRAMMING

- M-1 Performs ADP staff functions

N. EDUCATION, INSTRUCTION

- N-1 Prepares and conducts formal instruction in a school
- N-2 Conducts ROTC activities at civilian education institution
- N-3 Prepares doctrinal or formal instructional publications

O. INFORMATION ACTIVITIES

- O-1 Performs public information staff functions
- O-2 Assembles and prepares materials for command information or troop information activities
- O-4 Manages television or radio station of the Armed Forces Radio and Television Service

P. AUDIO-VISUAL ACTIVITIES

- P-1 Manages various audio-visual services for a major installation or activity
- P-2 Produces taped television or motion picture films for instructional or information purposes

U. TACTICAL DIRECTION OF COMBAT UNITS

- U-1 Directs and controls employment of Infantry and Armor maneuver unit
- U-2 Directs and controls mortars
- U-3 Directs and controls tactical employment of reconnaissance and scout unit
- U-4 Directs and controls heat seeking type air defense weapons (Redeye)
- U-5 Directs and controls antitank elements
- U-6 Participates individually and directly in ground combat

W. MISCELLANEOUS

- W-1 Provides personal assistance to general officer
- W-2 Directs and leads honor guard unit and performs staff functions pertaining to ceremonies
- W-4 Performs unit liaison activities
- W-5 Performs Inspector General staff functions
- W-6 Performs military history staff functions
- W-7 Provides advice and assistance for Army reserve components
- W-9 Represents US forces in military standardization activities with other countries

X INDIVIDUAL FUNCTIONS AND SPECIAL QUALIFIERS

- X-2 Participates in airborne operations as a parachutist (MOS SQI prefix 7)

X-3 Performs specialized nuclear weapons effects analysis
(MOS SQI prefix 5)

AA. AIR DEFENSE ARTILLERY

- AA-1 Directs and controls employment of light air defense artillery weapons
- AA-2 Directs and controls HAWK type air defense launchers and missiles

BB. FIELD ARTILLERY

- BB-1 Directs and controls employment of field artillery cannon firing battery
- BB-4 Performs field artillery reconnaissance and survey
- BB-5 Performs field artillery target acquisition

CC. MILITARY POLICE, LAW ENFORCEMENT, CRIMINAL INVESTIGATIONS

- CC-1 Serves as Provost Marshal
- CC-2 Controls and participates in military police operations
- CC-4 Directs and operates a military confinement facility
- CC-5 Directs, controls, and participates in operation of criminal investigation unit
- CC-6 Directs and operates criminal information center or system

EE. ENGINEERING

- EE-1 Directs and controls combat engineer unit
- EE-2 Directs and controls portable bridging
- EE-3 Directs and controls mobile water supply point unit operations
- EE-4 Directs and employs atomic demolitions (ADM)
- EE-5 Serves as engineer staff officer
- EE-7 Directs and controls engineer construction or heavy equipment unit
- EE-8 Designs, plans, and monitors construction projects for military engineer units
- EE-9 Directs and controls facilities engineering services for an installation
- EE-10 Prepares terrain study material
- EE-11 Conducts engineering surveys
- EE-12 Manages field production or revision of topographic and photographic military maps
- EE-13 Performs on-site supervision of engineer contract construction projects, and related contract administration
- EE-14 Coordinates military construction activities in an engineer district

- EE-15 Provides resident engineer district representation and services at a military installation
- EE-16 Conducts engineer oriented strategic studies and analyses
- EE-17 Plans, constructs, and maintains military pipeline system

FF. LOGISTICAL SERVICE OPERATIONS (SPECIALIZED)

- FF-1 Manages installation commissary
- FF-3 Manages officers' open mess
- FF-4 Performs food service and advisor staff functions
- FF-5 Directs and controls operation of mobile field laundry and bath units
- FF-6 Directs and controls support service unit or activity
- FF-7 Performs purchasing and contracting functions under the Armed Services Procurement Regulations
- FF-8 Directs and controls field mortuary and cemetery activities
- FF-9 Manages materiel supply control for one or more commodities within an organization or activity
- FF-10 Performs staff and operating functions concerning property disposal
- FF-11 Performs contract administration functions under the Armed Services Procurement Regulations
- FF-12 Coordinates materiel production and procurement activities for a major project or program
- FF-13 Oversees contractor-operated munitions plant
- FF-14 Directs a unit engaged in explosive ordnance disposal operations
- FF-15 Performs explosive ordnance disposal staff functions
- FF-16 Directs and controls chemical combat support
- FF-17 Performs chemical staff functions in a combat or combined arms organization

GG. TRANSPORTATION (OPERATIONS AND SPECIALIZED FUNCTIONS)

- GG-1 Coordinates military passenger traffic and movement operations
- GG-2 Performs staff management and coordination of military cargo shipments to and from overseas
- GG-3 Coordinates cargo handling operations at military ocean terminal
- GG-4 Directs or coordinates operations of deployable water terminal operating unit
- GG-5 Directs and controls operations of amphibious truck unit
- GG-6 Directs and controls operations of transportation truck unit
- GG-7 Performs highway traffic engineering staff functions

HH. SUPPLY AND MAINTENANCE SUPPORT OPERATIONS

- HH-1 Directs parachute maintenance and aerial delivery equipment support
- HH-2 Directs and controls petroleum supply unit
- HH-3 Directs and controls supply unit or activity
- HH-6 Supervises division heavy drop support
- HH-8 Directs and controls repair of non-missile equipment
- HH-9 Supervises storage and warehouse operations
- HH-10 Directs and controls support maintenance for artillery missile systems
- HH-11 Directs and controls machine shop and metal-working
- HH-12 Directs and controls special ammunition combat service support operations
- HH-13 Exercises staff supervision and technical control over maintenance support operations
- HH-14 Performs technical parts supply staff function
- HH-15 Manages parts supply activities or units
- HH-17 Directs and controls conventional ammunition supply and storage operations
- HH-20 Coordinates large-scale bulk POL movement and storage operations

II. FINANCE

- II-1 Performs finance and accounting functions
- II-2 Performs financial services staff functions for a deployable command

KK. CRYPTOLOGY, SPECIALIZED SIGNAL INTELLIGENCE AND SECURITY OPERATIONS, AND ELECTRONIC WARFARE

- KK-1 Directs and conducts ground signal surveillance, intercept, intelligence, and related electronic warfare operations
- KK-2 Directs and conducts airborne signal intelligence operations
- KK-3 Directs, conducts, and/or performs specialized cryptologic functions
- KK-4 Performs functions concerning Electronic Warfare (EW) in a general staff

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